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U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.
BULLETIN Q.

CLIMATOLOGY OF THE UNITED STATES.

BY
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Professor of Meteorology.

Prepared under direction of
WILLIS L. MOORE,
CHIEF U. S. WEATHER BUREAU.



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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
CENTRAL OFFICE OF THE WEATHER BUREAU,
Washington, D. C., May 17, 1906.

SIR: I have the honor to transmit herewith a report entitled "The Climatology of the United States," by Prof. Alfred J. Henry, and to recommend its publication as a bulletin of the Weather Bureau.

ERRATA.

[Pp. 114-118 and Pl. XXXIII.]

"Talbotom," Ga., page 114, should be "Talbotton;" "Eaubank," Ky., page 115, should be "Eubank;" "Middleboro," Ky., page 115, should be "Middlesboro;" "Moris," Minn., page 116, should be "Morris;" "Boliver," Tenn., page 117, should be "Bolivar;" "Enosburg Falls," Vt., page 117, should be "Enosburg;" "Marlington," W. Va., page 118, should be "Marlinton."

ARIZONA: Station No. 3 on Pl. XXXIII was omitted from the text. No. 4 on the plate should be No. 3, and the numbers thereafter should be diminished by one to make them agree with the numbers in the text on pages 114 and 901.

MICHIGAN: Page 115 insert, as No. 15, Lansing, and change the numbers of the four remaining stations to 16, 17, 18, and 19, respectively. The number of the station at Cheboygan on Pl. XXXIII was inadvertently placed over the station at Escanaba. No. 5 on this plate should appear on the northern shore of the southern peninsula, northwest of No. 6. No. 4, which now appears at Sault Ste. Marie, should appear in the place of No. 5, and No. 3 in the place of No. 4.

NEW YORK: No. 22 on Pl. XXXIII, viz, Setauket, should be 21 to agree with the text on pages 116 and 178.

WASHINGTON: Page 118, strike Tacoma from the list of stations. The data for this station were inadvertently omitted, although the number of the station appears on Pl. XXXIII. The numbers given in the State summary, on pages 118 and 929, agree with those on Pl. XXXIII from 1 to 9, inclusive. Thereafter the numbers on the pages referred to above should be increased by one to agree with those given on Pl. XXXIII.

INTRODUCTION.

The primary object of this work is to present in form for easy reference comparative climatic statistics for the different portions of the United States. The need of such a volume has been felt for some time, particularly within the Department. During the last few years the Bureau of Plant Industry has introduced a number of seeds and plants new to this country, as well as new varieties of plants and grains already well established. In order that the best results may be obtained, it is essential that the new plant or seed be placed in a climate closely resembling that of its original habitat. The Pomologist has likewise felt the need of more generalized climatic data than is afforded by the scattered publications of the weather service, and this is true in other lines of research that are being prosecuted by the Department.

Generally speaking, the statistics herein presented cover the period 1870-1903. Two distinct series of observations have been used: First, the observations made primarily for the synoptic weather charts during the period 1870 to 1903; second, the observations made by voluntary observers of the U. S. Weather Bureau for purely climatic purposes.

A word of explanation, as to the status of climatological observations in the United States, may not be out of place. In the early part of the nineteenth century persons interested in meteorology were simply observers of the weather and recorded those elements which truly serve as the fundamental data in climatic investigations. About 1830, at the beginning of the Redfield-Espy period, attention was drawn more and more toward observations bearing upon theoretical meteorology, and this state of affairs continued for upwards of twenty years, although the observations of the Medical Department of the Army were continued along substantially the lines laid down in the beginning. In 1842 the statistical information collected by the Medical Department of the Army was published by Dr. Samuel Forry in a work entitled "The Climate of the United States and its Endemic Influences." At that time, however, the study of meteorological observations was prosecuted mainly with a view of ascertaining the mechanism of storms, their mode of progression, and kindred facts, although the observations of the Medical Department lent themselves admirably to climatic studies. In 1857 Blodgett's *Climatology of the United States*, a volume of 536 pages, was published. In 1860 a report was issued by the Surgeon-General, U. S. Army, bringing the observational data down to 1860 and completing a period of about forty years continuous observations by the Medical Department. The civil war, 1861-1865, caused a hiatus in meteorological work in almost all sections of the country. At that time the Smithsonian Institution and three branches of the public service, viz, the Patent Office, the Medical Department of the Army, and the Lake Survey, were more or less active patrons and promoters of meteorological work. The Smithsonian Institution began the systematic collection of meteorological data in 1849 and continued actively engaged in the work for a period of twenty-five years. The results of its labors were given to the public in the Smithsonian "Contributions to Knowledge." Chief of these are "Tables of Rain and Snow in the United States;" "Tables, Distribution, and Variation of Atmospheric Temperature," and "Winds of the Globe."

On the organization of a Federal weather service the Smithsonian Institution relinquished its meteorological work and, in 1874, transferred its corps of observers to the Signal Service of the Army, then under Gen. Albert J. Myer. The Signal Service concerned itself chiefly with the issue of storm warnings and weather probabilities, and suffered its purely climatological work to lapse early in the eighties. Many of the observers who had formerly reported to the

Smithsonian Institution became discouraged and ceased observing, and the original corps of Smithsonian observers was thus gradually reduced to a mere remnant of its original strength. A revival of interest in climatological work was manifest in the Signal Service under the administration of Gen. A. W. Greely, 1887-1891. The organization of the voluntary observers in each State and Territory into climate and crop services was begun under General Greely, and such organizations were greatly perfected and strengthened by the present Chief of the Weather Bureau. The two measures that have been most effective in increasing the efficiency of the climatological work, as now carried on, were the adoption of a uniform plan of observations in 1895 and the printing of monthly climatological reports which began in 1896. Summarizing the foregoing, it will be noted that climatological observations in the United States may be classed as follows:

First. The Medical Department of the Army made at military posts during the period 1820-1890.

Second. Those made by cooperating observers of the Smithsonian Institution 1849-1874.

Third. The Signal Service and the Weather Bureau, 1870 to date.

In point of homogeneity, the observations of the Army Medical Department stand first, but their geographic distribution is unfavorable to a general discussion of climate. The observations of the Smithsonian Institution were, as a rule, carefully made and quite complete as to details. The number of observing stations, however, varied from less than 100 in the earlier years to about 350 at the time the work was transferred to the Signal Service. The geographic distribution of the stations was also unfavorable, almost the entire number being in the middle and eastern portions of the country. The climatological observations of the Signal Service are fragmentary and are especially lacking in homogeneity. As before stated, it is only within the last ten or twelve years that uniformity, both in observing and recording climatological data has been attained, and this fact will in a measure explain why so few records exceeding fifteen years in length appear throughout the volume.

The first chapter deals with the broader features of the climate of the United States. It is intended to be read in connection with reports on the climate of the respective States, which appear in subsequent chapters. For convenience in grouping and discussion the country has been divided into six climatic districts, viz, the New England and Middle Atlantic States, the South Atlantic and East Gulf States, the West Gulf and Southern Rocky Mountain Slope, the North Central States, the Rocky Mountain and Plateau region, and the Pacific coast.

The ideal census of climatology, so to speak, is one that shall give the essential features for every county in each political division. The present status of climatological science in this country falls far short of this ideal, yet it has been thought advisable to append to the text matter of each State or Territory an alphabetical list of the counties in that State or Territory, arranged so that the reader can refer in a moment to the nearest county for which observations are available.

In the pages which follow the careful reader will observe an occasional repetition. These have been made to save frequent reference to previous pages.

The author's acknowledgments are due to the honorable the Secretary of Agriculture and the Chief of the Weather Bureau, under whose authority the work was carried on, to the officials whose names appear in connection with the special reports upon the climate of the several States and Territories, and to Miss Mattie H. Chapman, who rendered valuable aid in the initial stages of the work.

Climate of the United States.

GENERAL FEATURES.

The determining factors of climate are chiefly latitude, the relative distribution of land and water, the elevation of the general land surface above the level of the sea, and the prevailing winds as controlled by the movement of cyclones and anticyclones.

The latitude of a place, or its distance from the equator, determines the intensity of solar radiation and the time it is effective. If the sun were fixed in the plane of the equator, day and night would be equal in all portions of the earth's surface, as is actually the case at the equinoxes, and insolation would vary with latitude according to a very simple law, viz, directly as the sine of the meridian altitude of the sun or the cosine of the latitude. But since the angular distance of the sun either north or south of the celestial equator varies from day to day, both the intensity and the amount of insolation are variable quantities, increasing in some seasons and diminishing in others. The intensity of insolation depends upon the angle of incidence of the sun's rays; that is, the more nearly perpendicular they are the greater will be their effect. In the winter season, when the meridian altitude of the sun is quite low, the angle of incidence for the sun's rays for points in northern latitudes is quite small and their effect is diminished, since they spread over a much greater surface than their cross section. In northern latitudes the noon altitude of the sun increases from a minimum in winter to a maximum in summer, and the obliquity of its rays progressively diminishes, although at no time do they reach the earth at right angles to its surface except in the Tropics. The amount of heat received from the sun at any point in the middle latitudes increases from a minimum at the winter solstice, when the sun is farthest south from the equator, to a maximum at the summer solstice, when the sun is farthest north. The increase in insolation is due not only to the higher meridian altitude of the sun and the increased angle of incidence of its rays, but also to the fact that as higher latitudes are reached the duration of sunshine increases. In the United States the duration of sunshine varies as much as two hours between the Gulf coast on the south and the Canadian border on the north; that is to say, if the greatest daily duration of sunshine at New Orleans and Jacksonville is fourteen hours, then along the northern boundary the greatest daily duration will be sixteen hours. In going still farther toward the north pole the daily duration of sunshine increases rapidly; thus, in north latitude $58^{\circ} 5'$ it becomes as much as eighteen hours in the summer season, an increase of four hours in passing from the southern portion of the United States. The amount of heat received, therefore, increases from winter to summer for two reasons: (1) The sun culminates higher—that is, reaches a higher noon altitude each day—and (2) it is above the horizon longer.

UNEQUAL WARMING OF LAND AND WATER SURFACES.

If the surface of the globe was uniformly land or water, and there were no surface features to react upon the atmosphere, the arrangement of climatic zones would be comparatively simple. As it is, the climatic zones are warped and distorted by reason of the irregular distribution of land and water upon the earth's surface and the difference in altitude of the land above the sea.

A land surface responds much more readily to direct insolation than a water surface, and also loses heat by radiation much more readily. The effect of this is to make the air temperatures over water much more equable than over land, so that differences of climate are brought about whenever a parallel of latitude runs partly over land and partly over water. The application of this broad principle to the climate of the United States is very simple. On the Pacific coast, owing to the vast extent of water surface to the westward and to the

fact that the prevailing winds are westerly, higher temperatures are experienced in the cold season than prevail in the same latitude in the interior of the continent, or on the Atlantic coast, where the prevailing winds are mostly from the colder interior. The amelioration of the winter climate in the region of the Great Lakes is directly attributable to these large bodies of fresh water. The climate of the Gulf coast likewise, and for some distance inland, is made less rigorous in winter by southerly winds from the Gulf of Mexico. In the warm season the modifying effects of the water are confined mostly to narrow belts along the western coast and around the Great Lakes. On the Atlantic coast the effect is not great except when on-shore winds prevail.

INFLUENCE OF ELEVATION.

Mountain systems exert a profound influence upon climate, not only in their immediate neighborhood, but also far to leeward of the prevailing winds. In general, the characteristics which distinguish between the climate of mountains and the surrounding lowlands are: (1) Lower temperatures, both winter and summer;^a (2) a dryer atmosphere; (3) greater rainfall and snowfall on the slopes exposed to the moisture-laden winds; (4) higher wind velocities and greater intensity of the direct solar rays.

In the United States the orographic control of climate centers about the following marked topographic features: First, the mountain systems of the Pacific coast States; second, the Rocky Mountains and collateral ranges; third, the great valley of North America, viz, a comparatively low and level region extending from the eastern foothills of the Rocky Mountain system to the Appalachians; and, fourth, the Appalachian Mountains.

The mountain ranges of the Pacific coast are two in number, viz, the Coast Range and the Sierra Nevada, the northern extension of the latter being known as the Cascades. West of the Cascades and the Sierra Nevada lie a series of valleys, the great valley of California, the Willamette Valley in Oregon, and the valley partly occupied by Puget Sound in Washington. The Coast Range of mountains separates these valleys from the Pacific, except at the mouth of the Columbia River and at San Francisco, Cal. The elevation of the Coast Range does not exceed 3,000 to 4,000 feet, except in northwest Washington, where, under the name of the Olympic Mountains, elevations of 8,000 feet are attained. In Oregon the average altitude of the range is less than 2,000 feet.

In the Cascades numerous volcanic cones rise to altitudes of 12,000 to 14,000 feet and over. Of these, Mount Rainier in Washington, 14,444 feet, and Mount Shasta in California, 14,350 feet, are the highest. The Sierra Nevada in California rise rather precipitously from the plateau on the east; the western slope, however, is gradual and deeply cut by mountain streams. The elevation of the range in northern California is from 10,000 to 12,000 feet, increasing southward, where individual peaks rise to 14,000 feet and over. The elevation where the Central Pacific crosses the range is about 7,000 feet, and the descent to practically sea level is made in about 100 miles.

The Coast Range.—The influence of the Coast Range of mountains upon the climate of the Pacific coast States is probably less than is generally supposed. Except in northwestern Washington the altitude reached by the crest of the range is not sufficient to materially modify the wind circulation proper to the region. The rainfall on the western slope is greater than on the eastern, but the depth of rainfall does not appear to be proportional to the elevation; in fact, the greatest depth is found in western Oregon, where the crest of the range is not more than 2,500 feet above sea level. The prevailing winds over the Coast Range both winter and summer are northwesterly, with occasional strong southeast indrafts, induced in winter by cyclonic storms that approach the Washington and Oregon coasts from the North Pacific. Northerly winds bring fair weather in all seasons. Southerly winds are rain winds, although the beginning of a rainy period is generally inaugurated by southeast winds. Rain continues with the shift of the wind to the southwest and west.

^a The rate of decrease of temperature on the average with increase of altitude as determined by observations made in balloons and kites and on mountains is 1° F. for each 330 feet.

The Sierra Nevada.—The Sierra Nevada and Cascades, whose summits attain altitudes of 10,000 feet and over, form the dividing line between the well-watered country to the westward and the semiarid lands of the West and Southwest. The diminution in the rainfall and snowfall between the crest of the ranges and the eastern foothills is exceedingly sharp. The total annual precipitation on the crest of the range from the heights of Fresno County, Cal., northward to the British possessions varies from 45 to 60 inches. Less than 50 miles to the eastward the annual amount ranges from about 6 inches in southwestern Nevada to less than 10 inches in the Yakima Valley of Washington. The Cascades and Sierra Nevada serve also as a natural barrier or boundary line between the cold air of the Great Basin and the northern Rocky Mountain regions and the warmer air in the interior valleys of Washington, Oregon, and California. There are times, however, when the atmospheric conditions are such that cold air from the interior flows down the western slopes of the Cascades and Sierra Nevada and over the valleys of Washington, Oregon, and California as a cold northeast to north wind. At such times the fall in temperature is general over the Pacific coast States except along the immediate coast line. In summer the warm winds are from the north and northwest almost parallel with the general trend of the mountain ranges.

The Rocky Mountain and Plateau Region.—The Rocky Mountains form a part of the great mountain system which borders the western portion of both the North and South American continents, and attains its greatest breadth and complexity in the western third of the United States. From the Mississippi River westward across the Great Plains the increase in altitude is very gradual until western Kansas is reached, when the slope increases somewhat. The elevation of the general surface of the country on the meridian that passes through extreme western Kansas is between 3,000 and 4,000 feet. Thence westward to the meridian of east-central Colorado it rises to about 5,000 feet and from this elevated plateau the mountain summits rise from 5,000 to 8,000 feet higher. The altitude of the plateau west of the Rocky Mountains, or the Great Basin, as it is sometimes called, ranges from 4,000 to 10,000 feet. With some minor exceptions the plateau and Rocky Mountain region may be said to include practically the whole of the country from about the one hundred and fifth meridian west of Greenwich to the Sierra Nevada and Cascade ranges.

The general trend of the mountain ranges of the plateau region is a little west of north. The slope of the plateau varies. The drainage of the southern portion is to the Gulf of Mexico through the Rio Grande, and to the Gulf of California through the Colorado, both rivers heading in the high mountains of Colorado. The eastern slope feeds the streams that empty into the Missouri and Mississippi, while the northwest slope is drained by the Columbia. The Great Basin, under which term is included parts of California, Oregon, Utah, and Nevada, has no natural drainage. The precipitation is deficient, and what few streams flow down the mountain slopes sink into the earth or are evaporated. This region is intersected by numerous mountain ranges, and is thus cut up into many single basins, most of which have no connection by natural drainage with other basins.

The trend of the Rocky Mountains is almost at right angles to the prevailing winds. Since westerly winds are relatively warm winds during the greater portion of the year, and since the ascent from the Great Basin to the summits of the Continental Divide is more or less gradual, the cooling due to elevation is not so noticeable as it would otherwise be. The Rocky Mountains have very little effect in retarding the eastward flow of warm currents of air from the Pacific in the cold season. Accordingly there are times when the temperatures on the summits and for some distance eastward are considerably above the normal for the latitude and elevation. A portion of the warming up east of the mountain summits is due to compression as the air descends to lower levels.

If a high mountain range extended in an east and west direction from the Mississippi Valley to the Pacific coast, the northern side of the range would be exceedingly cold as compared with the southern side, and the temperature in the Lake region would also be more rigorous in winter than at present.

The cold waves of winter that originate in the region north of Montana are deflected to the southeastward by the Rocky Mountains in the majority of cases. The cold winds along the eastern side of the range are from the northeast or north in all seasons of the year. Cold weather on the higher elevations and on the western side of the range is experienced under conditions somewhat similar to those which bring severe cold to the interior valleys of Washington and Oregon, viz, a marked barometric depression over the Great Basin, followed by an area of high pressure that sweeps southward over Idaho and Utah to northern Arizona. The area of high pressure in this case is the result of a strong rise in pressure over British Columbia and the North Pacific coast States at a time when the region directly to the eastward is occupied by an area of barometric maxima with very low temperatures. The winds attending these Great Basin highs are northeasterly over Washington and Oregon, and from a northerly quarter over Nevada, Utah, and the western slope of the Rocky Mountains. The area of temperature fall advances broadside from north to south with great rapidity; it may extend from the Pacific coast eastward to the western slope of the Rocky Mountains only, or it may include the eastern side of the range. In the latter case the mountains offer no obstruction to the southern advance of the cold.

In the months from April to October the plateau region west of the Rocky Mountains, by reason of its altitude and aridity, becomes unduly heated as compared with the normals for altitude and latitude.

It is difficult to evaluate the influence of the Rocky Mountains on atmospheric precipitation. Unlike the Sierra Nevada, the continuity of the range is somewhat broken, especially in Wyoming, where the surface configuration is more that of an elevated plateau than a mountain chain. The whole of the region between the Sierra Nevada on the west and the eastern foothills of the Rocky Mountains on the east, is one of deficient precipitation, except on the higher levels of Montana, Idaho, Colorado, and Wyoming, where the annual precipitation may be as much as 40 to 45 inches. In winter precipitation is almost wholly in the form of snow, and is heaviest west of the Continental Divide and on the western slopes of detached mountain ranges. In the warmer half of the year, precipitation is greater east of the Continental Divide than it is west of it. The precipitation of summer, however, is almost wholly in the form of thundershowers due to local convectional activity, in which the mountains doubtless play an important part. In the middle Rocky Mountain region and in a less degree over Montana, the surface winds that precede and attend general precipitation in winter and spring are from the northeast.

The Appalachians.—The eastern system of uplift, the Appalachians, is much simpler and of less consequence from a climatic standpoint than the western. The Appalachians extend in a general northeast-southwest direction from northern Alabama and northwest Georgia to New England. The elevation of the plain from which these mountains rise is about 1,000 feet in Georgia, Alabama, and the Carolinas, and less than 400 feet in New England. The southern end of the system is different in character from that of the northern. It contains the largest areas of land over 5,000 feet in altitude east of the Mississippi, and it is distinctively a mountain mass rather than a series of isolated mountains and north and south ridges, as in northern New York and northern New England. The greatest elevations in the southern Appalachians are Mount Mitchell, N. C., 6,712 feet, and Mount Guyot, N. C., 6,636 feet. Many other peaks and ridges rise above 6,000 feet. In Virginia the greatest altitudes do not much exceed 4,000 feet; in Maryland and Pennsylvania the altitude is still less, rising, however, in the Catskills of southern New York to about 4,000 feet, and in the Adirondacks of northern New York to over 5,000 feet. In New England the Green Mountains rise to an elevation of 4,000 feet and the White Mountains to 6,000 feet and over, the highest being Mount Washington, elevation, 6,293 feet. The mountain masses of the southern Appalachians have more or less influence upon the climate of the States in which they are situated.

The precipitation along the eastern and southern sides of the Appalachians in Georgia, South Carolina, and North Carolina is the heaviest in the United States east of the Rocky Mountains, the increased fall above that of surrounding regions being due to the increased elevation. The mountain ranges in question are so situated with respect to the rain-bearing winds as to greatly facilitate the rapid condensation of water vapor, whether borne by the

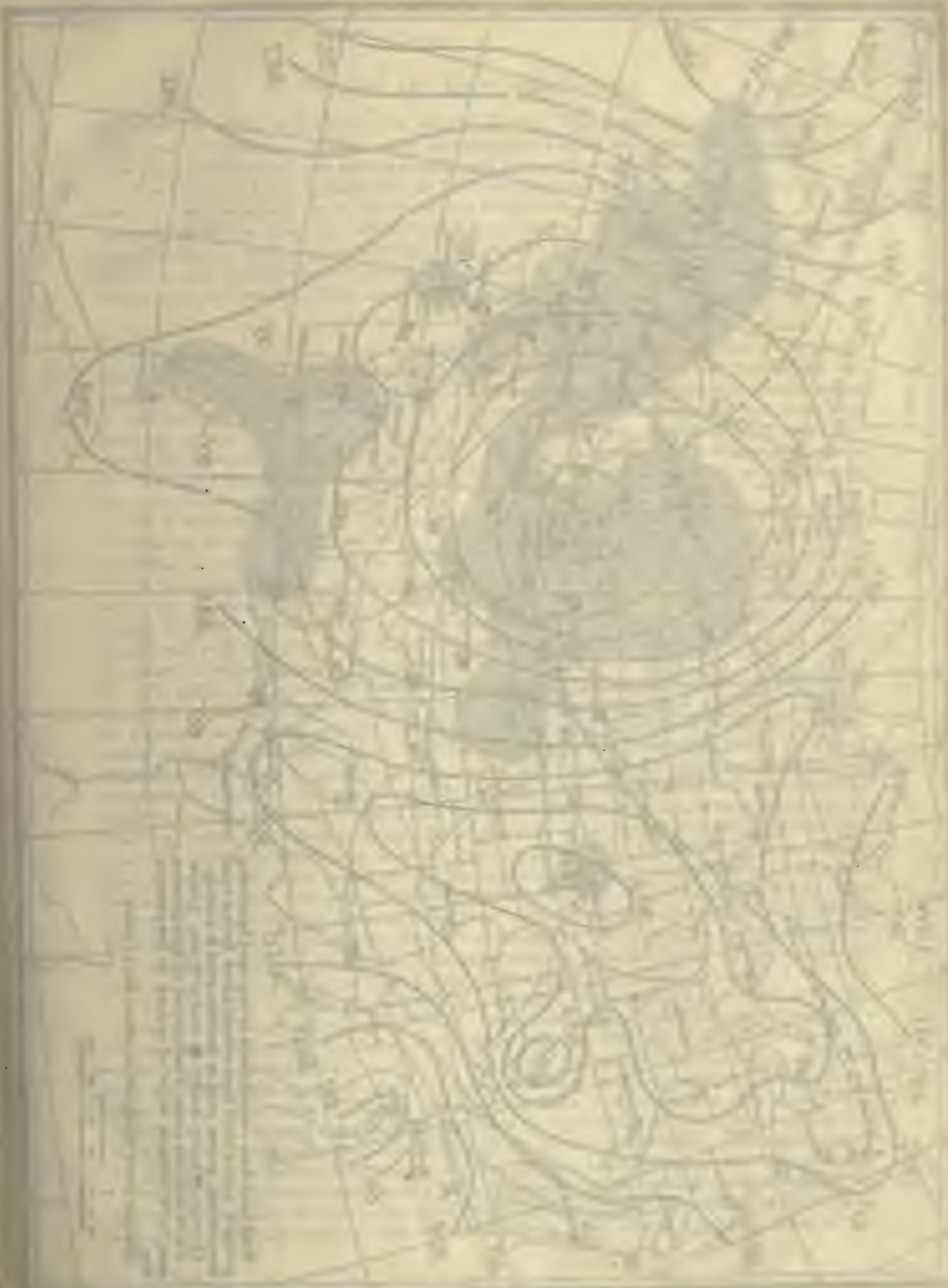
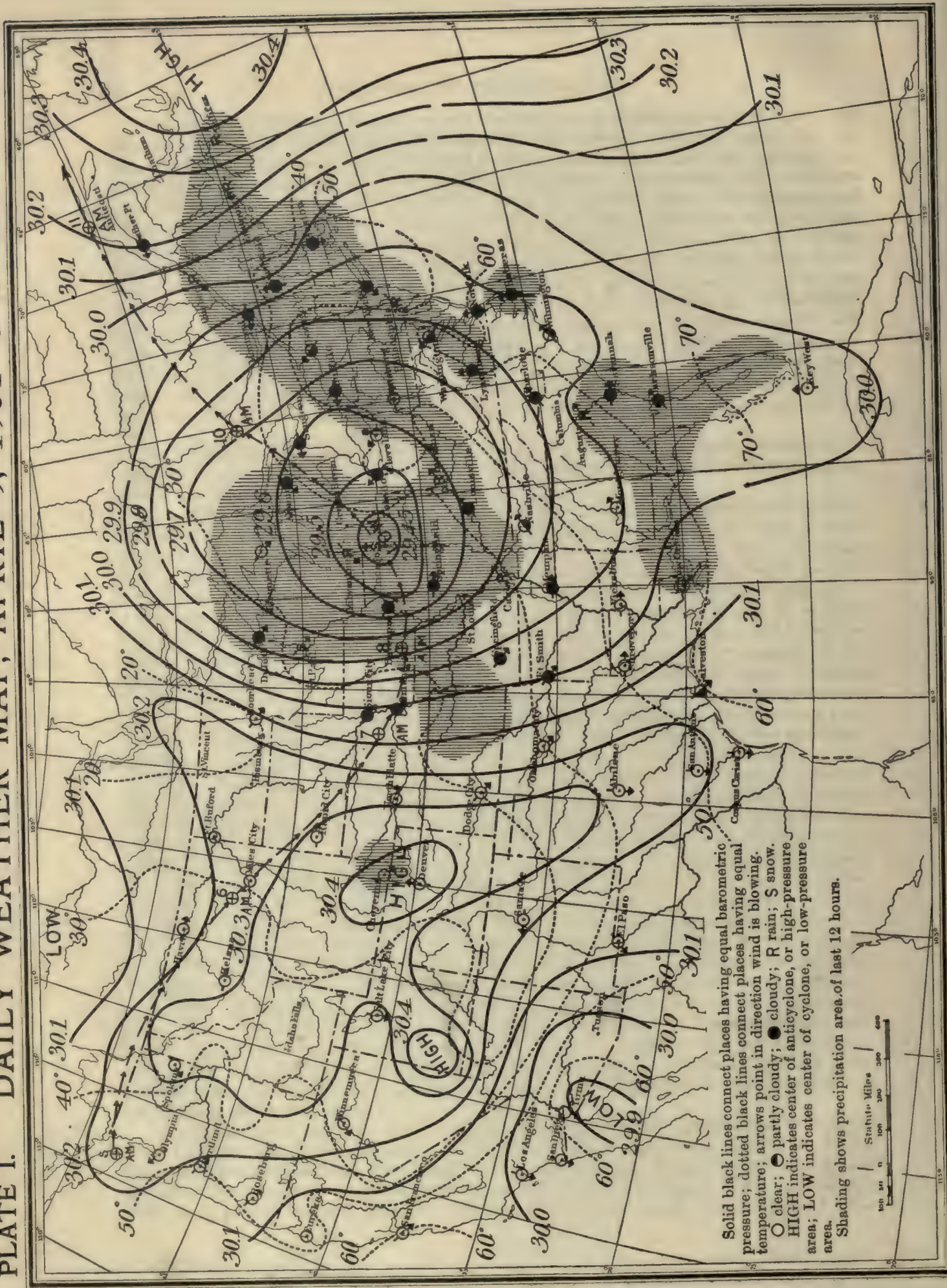


PLATE I. DAILY WEATHER MAP, APRIL 9, 1904—8 A. M.



Solid black lines connect places having equal barometric pressure; dotted black lines connect places having equal temperature; arrows point in direction wind is blowing. ○ clear; ● partly cloudy; ● cloudy; R rain; S snow. HIGH indicates center of anticyclone, or high-pressure area; LOW indicates center of cyclone, or low-pressure area. Shading shows precipitation area of last 12 hours.

winds from the Gulf of Mexico or the Atlantic Ocean. The indraft of warm moist air from these great storehouses of moisture and its subsequent cooling as it is forced up the mountain sides gives downpours of rain seldom experienced in the adjacent lowlands.

The altitude of the Appalachians in both northern and southern districts is sufficiently great to very materially lower the prevailing temperatures, especially in summer. In New England the White Mountains afford respite from the heat of the lowlands, and the same is true of mountain regions in eastern New York, eastern Pennsylvania, Maryland, Virginia, the Carolinas, and northwestern Georgia. The advance of severe cold waves from the west or northwest is not retarded to any appreciable extent by the mountains above mentioned.

CYCLONIC AND ANTICYCLONIC CONTROL OF CLIMATE.

The usual climatic data, while necessary for comparative purposes and also to the proper understanding of climate, convey little idea of the actual weather conditions that are experienced from day to day, especially in temperate latitudes. The monthly mean values of the various climatic elements and the monthly and annual extremes for each State and Territory appear in a subsequent portion of this volume. Before entering upon their consideration, however, an effort will be made to describe in some detail the changing character of the weather experienced from day to day in different portions of the country and some of the causes which contribute thereto.

It is unfortunate, in some respects, that the month has been used as the time unit in the compilation of climatological statistics. A more rational method, yet one of great inherent difficulties, would be to compile the usual climatic elements for two, or possibly three, periods.

If two periods be used, one should correspond as closely as possible to the intervals during which the weather is dominated and controlled by an anticyclone; the other to the intervals during which it is dominated by cyclonic conditions. There might be a third period, viz. a transitional period, during which the severe weather of the anticyclone gradually gives way to the more moderate weather that precedes the cyclone.

The cyclone and anticyclone defined.—Before venturing further, it may be well to define as briefly as possible the terms “cyclone” and “anticyclone.” The term “cyclone” is applied to a graded series of atmospheric disturbances whose chief characteristics are (1) a central region of low pressure around which the atmosphere is gyrating, counter clockwise; (2) a great cloud area from which is precipitated rain or snow, and (3) shifting winds attended by marked temperature changes. The term “cyclone” is often improperly applied to a tornado. The latter is a violent local storm whose path rarely exceeds a quarter of a mile in width and 25 miles in length. Its distinguishing characteristic is a pendent funnel-shaped cloud that generally reaches to the ground, in which the force of the wind is sufficient to break off and uproot trees and demolish buildings. In the cyclone there is a movement of the air around a central region of low pressure in a direction contrary to that of the hands of a watch. The mass of air so moving does not extend to a great height above the surface of the earth, but its horizontal extent is sometimes very great. It is possible for the whole of the surface air between the eastern foothills of the Rocky Mountains and the Atlantic Ocean to respond to the influence of a single cyclone, as that of April 9, 1904, here reproduced. (Plate I.)

In connection with this figure attention is directed to the whirl of the winds about the central area of low pressure, marked “low.” Southeast of the center they are moving from the southwest and south; northeast of the center from the east and northeast; north of the center almost from the north; on the west side of the center from the northwest, etc. The whirling is not rapid, except in a few cases, as may be seen by the wind velocity at the time of observation. (See table containing the numerical data from which the map was made.) The direction of the wind is more or less influenced by local topography and therefore may not in all cases respond closely to that demanded by the pressure distribution. The central area of low pressure in the figure above mentioned is over southern Lake Michigan, where the barometer reduced to sea level reads 29.45 inches. The concentric circles surrounding the center of the cyclone (isobars) pass through points at which the barometer reads one-tenth of an inch higher, respectively, counting outward from the second circle, which stands for 29.50 inches of the

barometer. In going westward from the center of the cyclone it will be observed that the barometer reads higher and higher until a second inclosed area (longitude 105° west from Greenwich, north latitude 40°) is reached. That point marks the center of the anticyclone or area of high pressure which is following the cyclone. The wind circulation around the center of the anticyclone (high) is the exact reverse of that around the cyclone (low), viz, as the hands of a watch move. It is important to fix clearly in the mind the wind circulation in both cyclones and anticyclones.

METEOROLOGICAL DATA FOR APRIL 9, 1904.

Districts and stations.	Pressure.		Temperature.				Wind velocity in miles per hour.	Rainfall in last 24 hours, inches.
	Readings in inches.	Abnormal change in 12 hours.	Dry bulb.	Change in 24 hours.	Maximum in last 24 hours.	Minimum in last 24 hours.		
Atlantic coast States and St. Lawrence Valley:								
Sydney, Cape Breton	30.46	+16	34	- 4	40	26	Lt.	0
Father Point, Quebec	30.22	-12	34	+ 6	42	26	10	0
Halifax, Nova Scotia	30.40		32	- 8	50	30	12	0
Quebec, Quebec	30.06	-18	36	+ 4	38	32	28	0.02
Montreal, Quebec	29.90	-20	38	0	50	36	12	.48
Eastport, Me.	30.22	-10	34	- 2	50	32	20	.04
Northfield, Vt.	30.00	-16	42	0	56	42	10	.06
Portland, Me.	30.06	-22	38	- 2	52	38	14	.32
Concord, N. H.	30.02		40	+ 4	60	36	8	.48
Boston, Mass.	29.96	-24	42	- 8	54	40	14	.48
Nantucket, Mass.	29.96	-22	54	+14	54	40	10	.84
Block Island, R. I.	29.94	-20	40	- 2	46	40	10	.54
Binghamton, N. Y.	29.82		54	+24	60	30	8	T.
Albany, N. Y.	29.90	-18	48	+12	64	36	Lt.	.26
New York, N. Y.	29.86	-16	48	0	62	42	14	.38
Scranton, Pa.	29.84	-16	52	+ 6	60	46	Lt.	.08
Harrisburg, Pa.	29.78	-12	50	+ 4	58	46	6	.32
Philadelphia, Pa.	29.84	-16	50	0	66	48	Lt.	.32
Atlantic City, N. J.	29.86	-12	46	+ 4	52	42	10	.06
Baltimore, Md.	29.78	-12	56	+ 4	62	52	Lt.	.40
Washington, D. C.	29.78	-10	60	+ 8	68	52	6	.72
Mount Weather, Va.			52	+ 8				.80
Lynchburg, Va.	29.78	- 4	60	+ 4	68	56	6	.02
Richmond, Va.	29.80		58	+ 2	72	56	6	.20
Norfolk, Va.	29.88	- 2	62	+ 4	74	58	12	.06
Wytheville, Va.	29.70		56	0	66	50	12	.04
Charlotte, N. C.	29.84	- 6	58	- 4	70	58	10	.06
Asheville, N. C.	29.74		54	- 4	68	54	16	T.
Raleigh, N. C.	29.84	- 4	60	+ 2	76	58	6	T.
Hatteras, N. C.	29.92	- 6	66	+ 2	74	64	10	.08
Wilmington, N. C.	29.88	- 6	64	- 2	74	62	6	.08
Charleston, S. C.	29.90	- 6	64	- 4	74	62	8	T.
Augusta, Ga.	29.92	0	58	- 8	70	58	12	.16
Savannah, Ga.	29.92	- 6	62	- 4	68	60	6	.32
Jacksonville, Fla.	29.92	- 6	66	0	74	64	16	.10
Jupiter, Fla.	29.98	- 6	76	0	80	64	6	.30
Key West, Fla.	29.98	0	78	0	84	74	12	0
Gulf States:								
Atlanta, Ga.	29.88	- 2	54	- 4	70	54	10	T.
Macon, Ga.	29.90		58	- 2	72	58	Lt.	T.
Tampa, Fla.	29.96	- 6	70	0	82	64	16	T.
Pensacola, Fla.	30.00		58	- 6	72	58	6	.01
Mobile, Ala.	30.00	+ 4	56	- 6	74	56	Lt.	T.
Montgomery, Ala.	29.92	0	54	- 8	72	54	10	0
Birmingham, Ala.	29.84		52	- 2	70	52	12	0
Meridian, Miss.	29.90		52	+ 2	70	50	8	0
Vicksburg, Miss.	29.94	0	52	+ 2	66	50	18	0
New Orleans, La.	30.04	+ 6	54	- 6	72	54	8	.01
Shreveport, La.	30.06	+ 2	50	+ 4	64	46	14	0
Gulf States—Continued.								
Fort Smith, Ark.	30.00	+ 8	42	0	56	40	26	0
Little Rock, Ark.	29.92	+ 4	44	0	62	44	14	0
Palestine, Tex.	30.14	+ 4	50	+ 4	64	46	12	0
Galveston, Tex.	30.18	+ 8	60	0	68	58	12	0
Taylor, Tex.	30.20		48	+ 2	70	46	8	0
San Antonio, Tex.	30.22	+14	48	0	76	46	6	0
Corpus Christi, Tex.	30.16	+10	56	- 8	72	56	Lt.	0
Ohio Valley and Tennessee:								
Memphis, Tenn.	29.88	+ 6	44	- 4	62	44	20	0
Nashville, Tenn.	29.78	+ 4	46	- 3	66	46	14	0
Chattanooga, Tenn.	29.82	- 2	52	- 4	70	52	16	T.
Knoxville, Tenn.	29.74	- 6	54	- 2	72	52	26	T.
Louisville, Ky.	29.68	+ 2	44	- 8	62	42	24	.01
Lexington, Ky.	29.66		44	-14	64	44	20	.20
Evansville, Ind.	29.66		40	- 8	56	40	Lt.	.02
Indianapolis, Ind.	29.54	- 6	36	-14	52	34	24	.18
Cincinnati, Ohio	29.62	- 4	44	-14	64	44	18	.22
Columbus, Ohio	29.56	-12	52	- 2	62	48	18	.26
Parkersburg, W. Va.	29.66	- 6	46	-12	70	42	Lt.	.14
Pittsburg, Pa.	29.64	- 4	58	+ 2	64	50	Lt.	.20
Lake region:								
Bissett, Ontario	29.80	-16	38	+ 6	50	32	0	0
White River, Ontario	29.68	-24	30	+ 2	36	28	0	.56
Port Arthur, Ontario	29.76		26	- 6	40	24	12	.04
Saugeen, Ontario	29.62		46	+ 4	54	36	14	.12
Syracuse, N. Y.	29.78		56	+12	60	44	12	.02
Oswego, N. Y.	29.74	-14	52	+10	58	40	14	.10
Rochester, N. Y.	29.72		54	+12	60	42	6	.30
Buffalo, N. Y.	29.66	- 6	52	+ 6	58	46	10	.24
Erie, Pa.	29.60		54	+ 2	58	42	14	.04
Cleveland, Ohio	29.60	-10	50	- 2	60	48	12	.34
Toledo, Ohio	29.50	-16	50	+ 6	58	42	24	.40
Detroit, Mich.	29.52	-16	50	+ 8	54	40	18	.32
Alpena, Mich.	29.60	- 4	38	+ 2	38	30	Lt.	.68
Sault Ste. Marie, Mich.	29.64	- 4	36	- 2	50	34	6	.38
Houghton, Mich.	29.64		32	- 2	42	32	8	.52
Marquette, Mich.	29.64	- 4	34	0	36	34	Lt.	.24
Escanaba, Mich.	29.62	+ 4	32	- 4	46	32	6	1.02
Green Bay, Wis.	29.56	0	32	- 4	40	32	16	.66
Grand Rapids, Mich.	29.48	- 8	40	- 2	42	36	Lt.	1.08
Milwaukee, Wis.	29.48		34	- 4	44	34	Lt.	.32
Chicago, Ill.	29.44	-10	36	- 6	48	34	6	.20
Duluth, Minn.	29.76	- 4	28	- 4	38	28	24	.01
Upper Mississippi Valley:								
St. Paul, Minn.	29.76	+10	32	- 8	44	30	20	.78
La Crosse, Wis.	29.62		32	-10	42	32	14	.28
Dubuque, Iowa	29.56	+14	34	-10	44	34	16	.20
Davenport, Iowa	29.50	+18	34	- 4	38	32	12	.10
Des Moines, Iowa	29.80	+32	34	-12	46	34	18	.26
Keokuk, Iowa	29.60		36	+ 2	40	32	18	.48

METEOROLOGICAL DATA FOR APRIL 9, 1904 Continued.

Districts and stations.	Pressure.		Temperature.						Districts and stations.	Pressure.		Temperature.					
	Reading in inches.	Abnormal change in 12 hours.	Dry bulb.	Change in 24 hours.	Maximum in last 24 hours.	Minimum in last 24 hours.	Wind velocity in miles per hour.	Rainfall in last 24 hours, inches.		Reading in inches.	Abnormal change in 12 hours.	Dry bulb.	Change in 24 hours.	Maximum in last 24 hours.	Minimum in last 24 hours.	Wind velocity in miles per hour.	Rainfall in last 24 hours, inches.
Upper Mississippi Valley—Continued.									Rocky Mountain Slope—Continued.								
Springfield, Ill.	29.54	+14	36	0	38	32	20	.28	North Platte, Nebr.	30.34	+16	30	0	48	28	8	0
St. Louis, Mo.	29.64	+16	36	-2	42	34	14	.04	Denver, Colo.	30.42	+12	22	-2	46	22	8	0
Cairo, Ill.	29.78	+10	40	-4	56	38	20	T.	Amarillo, Tex.	30.32	+18	32	0	54	...	12	0
Missouri Valley:									Pueblo, Colo.	30.28	+8	24	-4	52	24	1.1	0
Springfield, Mo.	29.92	+18	32	-4	40	30	22	.16	Dodge, Kans.	30.26	+18	30	-4	52	30	14	0
Kansas City, Mo.	29.92	+32	32	0	34	32	16	.28	Oklahoma, Okla.	30.14	+14	40	+2	58	38	12	0
Wichita, Kans.	30.12	+14	36	0	42	36	20	.06	Fort Worth, Tex.	30.20	...	48	0	64	48	14	0
Concordia, Kans.	30.14	+20	32	0	34	32	16	.06	Ablene, Tex.	30.28	+16	42	-2	62	42	8	0
Omaha, Nebr.	29.98	+30	28	-2	38	28	24	.26	El Paso, Tex.	30.14	+20	46	0	76	46	22	0
Lincoln, Nebr.	30.04	...	28	0	32	28	28	.10	Santa Fe, N. Mex.	30.22	+20	26	-2	56	24	1.1	0
Valentine, Nebr.	30.28	+8	28	+4	42	24	6	.02	Flagstaff, Ariz.	30.08	+6	30	-10	62	30	1.1	0
Sioux City, Iowa.	30.02	...	28	-4	40	26	30	.28	Yuma, Ariz.	29.90	...	66	-4	94	64	1.1	0
Huron, S. Dak.	30.18	+10	22	-4	28	22	18	.16	Phoenix, Ariz.	29.96	+4	58	+4	88	52	1.1	0
Pierre, S. Dak.	30.28	...	30	+2	44	28	6	0	Pacific coast:								
Morehead, Minn.	30.12	...	20	-10	30	20	14	.40	Victoria, British Columbia	30.22	...	44	...	58	44	0	0
Williston, N. Dak.	30.22	-14	22	-4	40	22	Lt.	0	Kamloops, British Columbia	30.18	+2	40	-2	56	40	0	0
Rocky Mountain Slope:									Spokane, Wash.	30.24	...	36	0	60	36	Lt.	0
Battleford, Sask.	30.10	-18	28	+12	38	16	0	0	Walla Walla, Wash.	30.28	0	44	+4	66	40	1.1	0
Havre, Mont.	30.18	-10	36	...	52	32	14	0	Tacoma, Wash.	30.22	...	46	0	64	44	Lt.	0
Helena, Mont.	30.26	-4	28	-2	54	...	16	0	Portland, Oreg.	30.16	+2	50	+4	72	46	6	0
Yellowstone Park, Wyo.	30.34	...	30	+16	46	14	Lt.	0	Roseburg, Oreg.	30.14	...	46	+6	76	38	Lt.	0
Miles City, Mont.	30.22	-16	30	...	62	28	6	0	Baker City, Oreg.	30.32	+8	36	+4	64	32	Lt.	0
Kalispell, Mont.	30.32	+2	30	+6	50	24	Lt.	0	Carson City, Nev.	30.16	+6	38	+6	70	30	Lt.	0
Lewiston, Idaho.	30.30	...	42	+4	62	36	Lt.	0	Winnemucca, Nev.	30.24	+2	38	+4	66	34	10	0
Pocatello, Idaho.	30.32	+2	36	+6	58	28	Lt.	0	Eureka, Cal.	30.04	-2	50	+4	70	46	0	0
Boise, Idaho.	30.36	+4	40	+4	64	36	Lt.	0	Red Bluff, Cal.	30.18	+4	54	-2	86	54	Lt.	0
Rapid City, S. Dak.	30.32	+2	22	-8	44	22	6	0	San Francisco, Cal.	30.16	-2	60	+4	80	56	Lt.	0
Lander, Wyo.	30.38	+4	24	0	46	22	Lt.	0	Fresno, Cal.	30.02	+4	56	0	86	52	Lt.	0
Salt Lake City, Utah.	30.30	0	40	+6	54	32	Lt.	0	Los Angeles, Cal.	29.98	+2	58	+6	86	52	1.1	0
Modena, Utah.	30.40	+26	34	+6	62	28	6	0	San Diego, Cal.	29.94	...	56	0	66	52	Lt.	0
Grand Junction, Colo.	30.28	+12	36	+4	56	32	Lt.	0									
Cheyenne, Wyo.	30.44	-4	22	0	34	14	8	.04									

The next point to be considered in the structure of the cyclone and anticyclone is the distribution of temperature. The temperature at each station at the moment of observation is given on pages 12-13, and the dotted lines on the map (isotherms) join places having the same temperature. It will be observed that it is considerably warmer in front of the cyclone to the eastward of the center than in its rear; that the isotherms bend northwestward from the Middle Atlantic coast to the lower Lake region, thence southwestward into Texas, where they again change direction to the northwest. The southeastern quadrant of the cyclone is the warmest, the northwestern the coldest, while in this particular cyclone the northeast and southwest quadrants have approximately the same temperature. In rapidly moving cyclones the temperature of the southwest quadrant is in general higher than that of the northeastern, but where the center of the cyclone moves slowly the northwest winds in its rear run far to the south of its center and cause a decided lowering of the temperature. The northwest quadrant is always the coldest and the southeastern the warmest. When the center of the cyclone extends in a north and south direction in the form of a trough of low pressure, the eastern side is the warm side and the western the cold side. A calculation of the mean temperature in five typical winter cyclones gives the following: Northwest quadrant, 13°; southwest quadrant, 34°; southeast quadrant, 49°; northeast quadrant, 26°.

The rain area for the twenty-four hours preceding the date of the chart is shown by the shaded area. In general, the rain areas attending cyclones are very irregular in form.

Cyclonic weather.—Considering the weather changes incident to the passage of a cyclone, it may be remarked that the first premonition of a change from clear skies and fair weather is an increase in cloudiness and a rise in temperature. In the majority of districts the winds set in from an easterly quarter and soon shift to southerly, increasing in force, and causing a rise in temperatures as the warmer air of southern latitudes is transported northward. As the center of the cyclone approaches, the sky becomes overcast and rain or snow begins; as soon as it passes, the clouds break away, the wind shifts or backs to some westerly quarter, and the temperature falls. The passage of a cyclone, in short, causes an increase in cloudiness, easterly to southerly winds, a rise in temperature, the precipitation of rain or snow, followed by winds shifting to westerly, with colder weather. Moreover, the passage of a cyclone opens the way for the advance of an anticyclone.

Anticyclonic weather.—The chief characteristics of the anticyclone are (1) a central region of high pressure and clear skies, (2) a wind circulation directly opposite to that of the cyclone, and (3) temperatures considerably below those proper to the cyclone. The time consumed in the passage over any given place of a cyclone and the attendant anticyclone is not far from three days. The cold of the anticyclone then begins to relax, and the cycle of weather changes above described is repeated as soon as a second cyclone approaches. The cyclone is typical of relatively warm cloudy weather, with rain or snow; the anticyclone, of clear skies, light winds, and fair weather. If, therefore, the procession of cyclones and anticyclones is fairly constant, the weather in the region traversed by these disturbances will be alternately bright and sunny and cloudy and rainy. If the number of the disturbances that pass over any given district is relatively large and the prevailing winds are from a water surface, as along the northern Pacific coast in the cold season, then will rain or snow be frequent and the cloudiness excessive. On the other hand, as the frequency of cyclonic winds diminishes, the proportion of clear skies and fair weather increases up to a certain point. The Southwestern States (Colorado, Utah, Arizona, New Mexico, and southern California) are rarely visited by cyclonic disturbances, and although the prevailing winds are from the Pacific, there is comparatively little cloudiness or precipitation. In the Gulf and South Atlantic States, while cyclonic disturbances are infrequent in the summer season, there is more or less cloudiness and rain. The latter, however, is due almost wholly to local convectional action which ceases at nightfall. In the cyclone, convectional action proceeds day and night, and hence cloudiness and rain are as frequent in the night hours as in the daytime. From the foregoing it will be seen that a knowledge of the frequency and distribution of cyclonic disturbances is essential to the proper understanding of climate. It is a difficult matter to give numerical expression to the varying conditions caused by the passage of cyclones and anticyclones. One of the chief difficulties lies in the fact that there is at all times much uncertainty as to the dividing line between cyclonic and anticyclonic weather, since the one shades almost imperceptibly into the other. The conditions which characterize the cyclone, it is true, stand out in marked contrast to those which constitute the anticyclone, but as the severity of anticyclones relaxes there is often a period of several days of fair, pleasant weather which would be difficult to classify. There are also many periods of varying length when cyclonic activity is temporarily suspended, and the prevailing weather is the result of the diurnal changes proper to the season.

Paths of cyclones in the United States.—The main paths over which cyclones move across the United States are as follows: Path No. 1, from the region north of Montana southeastward to that State, and thence eastward across the Lake region and down the St. Lawrence Valley. Some of the disturbances of this group make a loop southward over the eastern slope of the Rocky Mountains to the Mississippi Valley and move thence northeastward to the Canadian maritime provinces. Path No. 2, from the Washington and Oregon coasts eastward to the mouth of the St. Lawrence, or southeastward over the Plateau region to New Mexico and west Texas, where they change direction and move northeastward to the Canadian maritime provinces. Many ill-defined depressions drift eastward from the Pacific Ocean and first assume definite form over the Plateau and Rocky Mountain districts. It was customary, at one time, to consider these storms as originating in those districts; a careful study of the weather maps

will show, however, that the disturbances nearly always come from the westward. Path No. 3, from Texas or the Gulf coast northeastward to the Canadian maritime provinces. In some cases, storms which first appear as a definite disturbance over the Gulf of Mexico can be traced back to the coast of southern California. Path No. 4, West India hurricanes move first in a westerly course over the Caribbean Sea and recurve to the northeastward in the vicinity of western Cuba. In some instances, these storms continue in their westerly course across the Gulf of Mexico, as in the case of the Galveston hurricane, and recurve to the northeast over the interior valleys of the United States.

Paths of anticyclones.—The anticyclones or highs originate in but two places: (1) In the region north of Montana, and (2) over the Pacific Ocean westward from the California coast. It is quite probable that the highs which strike the California coast are offshoots from the permanent area of high pressure that lies over the Pacific between the Sandwich Islands and the California coast. The highs of the first group move southeastward over the northwest Canadian provinces to Montana and thence eastward across the Lake region to the Middle Atlantic coast, or they may continue their southeastward movement to the west Gulf coast, and thence eastward to the South Atlantic coast, or northeastward to the Gulf of St. Lawrence. The California coast highs likewise move in either of two paths: (1) Northeastward along the coast to Washington and Oregon, thence eastward along the northern boundary to the Lake region and Middle Atlantic coast, as in the case of a portion of the highs belonging to Group No. 1; or (2) they may move directly from the California coast east-southeast to the South Atlantic coast.

From the foregoing summary it will readily be seen that no matter at what point an area of low pressure may enter the United States the probabilities are that it will pass out of the country by way of the Lake region and the St. Lawrence Valley. Likewise the movement of areas of high pressure are from the west to the east in either of two main paths which may be referred to as the northern circuit and the southern circuit. There are two or three connecting paths over which highs pass from one circuit to the other, as along the eastern slope of the Rocky Mountains and over the northern Plateau from the Washington coast to eastern Montana.

The wind circulation in a cyclone and its effect on temperature.—The circulation of the wind in a cyclone tends to constantly renew the air at any given point within its sphere of influence. Thus an observer stationed at St. Louis, Mo., for example, will note that as a cyclone passes along Path No. 1 the winds at first will be southeasterly, and that they will shift successively to the south, southwest, and west. The rise in temperature due to southerly winds will depend somewhat on the form and intensity of the barometric depression, its distance from the point of observation and the initial temperatures, whether above or below the seasonal average.

The temperature changes in cyclones and anticyclones.—It has been found that for interior points the extreme range of temperature due to the passage of cyclones and anticyclones is about 60° ; that is to say, under the most favorable conditions the temperatures in advance of a cyclone may rise as much as 30° above the normal and it may fall as much as 30° below the seasonal average under the influence of a marked anticyclone. It does not follow, however, that a rise and fall as above described are necessarily consecutive phenomena; as a rule, the greatest positive departure in any month is not followed by the greatest negative departure. The rise in temperature in front of a cyclone is due partly to solar radiation, partly to the importation of relatively warmer air from southern latitudes, and partly to the weakening of nocturnal radiation due to the screen afforded by the clouds and an increase in the amount of water vapor in the air. The last-named cause is a very important factor in warming the lower layers of the atmosphere. By its operation the heat received during the daylight hours is largely conserved and as a consequence the initial temperatures of the second day are considerably higher than they would be under the influence of solar radiation alone.

The fall in temperature in the rear of a cyclone (or the front of an anticyclone) is also dependent upon several variable factors, viz, (1) the intensity of the cyclone and its distance from the point of observation and (2) the initial temperatures and the position and intensity of the anticyclone. As before stated, the fall in temperature in the rear of the cyclone may be as much as 30° below the average for the time and place. In general, however, when a

fall of this amount occurs the area affected is very small and the fall is apt to be followed in twenty-four hours by a rise of from 10° to 12° , regardless of the barometric conditions. It would seem in such cases that the intense cold of an anticyclone is limited to a thin surface stratum of air; that the air aloft is relatively warmer, and that in the slow descent and settling of air the temperature of the air aloft is gradually acquired by the surface layers. The areas of temperature fall in connection with the advance of an anticyclone have a marked resemblance to a cone. The altitude of the cone represents the greatest fall in temperature and the fall decreases regularly to the base of the cone, where it becomes zero.

A graphical presentation of the main features of cyclonic and anticyclonic weather will be found in the series of 12 daily weather maps here reproduced, Plates II-VII; also in text figures Nos. 1, 2, and 3.

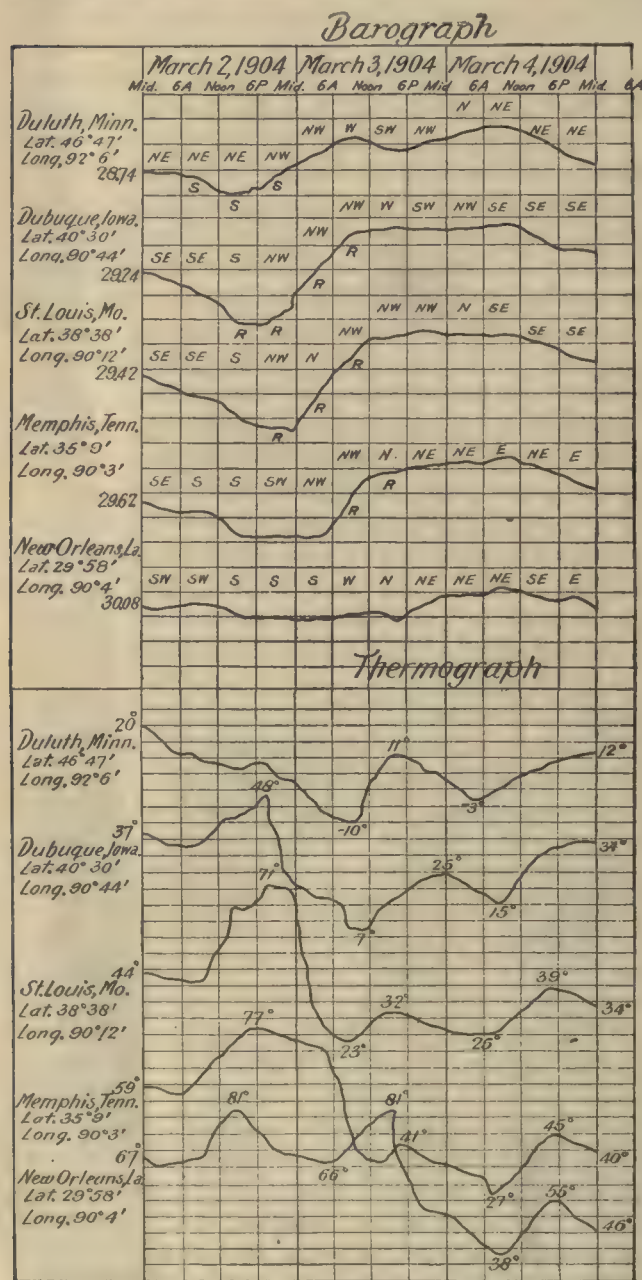


FIG. 1.—Barograph and thermograph curves, wind, and weather during the passage of a cyclone and its attendant anticyclone across the ninetyeth meridian west longitude.

A further illustration of the tendency of cyclones and anticyclones to cause the daily extremes of temperature to occur at irregular hours is afforded by the text table which appears on page 19. The data in this table show clearly that the stability of the daily temperature curve is greatest in the south and southwest and least along the northern boundary—a result wholly in accord with previous statements. It also shows that the minimum temperature is more likely to occur at an irregular hour in all portions of the country than the maximum. In compiling the data it was assumed that the regular hours for the daily occurrence of the maximum temperatures are from noon to 6 p. m. and for the minimum from 2 a. m. to 8 a. m.

EXPLANATION OF FIGURES NOS. 1, 2, AND 3.

Figures 1, 2, and 3 have been prepared to show the wind circulation and the temperature changes incident to the movement of cyclones and anticyclones in the United States across the ninetyeth meridian of west longitude. The fluctuations in pressure, the prevailing direction of the wind, and the occurrence of precipitation are shown in the upper half of the diagram; the fluctuations in temperature in the lower half. The letter R indicates rain, S snow. The time used is seventy-fifth meridian.

In fig. 1 the center of the cyclone crossed that meridian between noon and 6 p. m. of March 2, as may be seen by the downward inflection of the barograph curves on that date. The cyclone was followed by an anticyclone of considerable strength, as illustrated by the sharp rise in the barograms. The direction of the wind previous to the passage of the cyclone was southerly, except at the northernmost station. The temperatures were high for the season. (See the thermograph curves on the lower half of the diagram.) The winds, after the cyclone had crossed the meridian, backed to northerly at Duluth and shifted to northerly at the remaining stations. The wind backed to northerly at Duluth because the center of the cyclone passed eastward south of that station. By reason of this the temperature, instead of rising in front of the cyclone, fell. At the remaining stations there was a sharp fall in temperature as soon as the winds shifted to a northerly quarter.

In fig. 2 the approach of the cyclone is more gradual than in fig. 1, and it was not followed by a strong anticyclone. The high temperatures in front of the cyclone do not therefore sink so rapidly as in fig. 1, although there is a decided cooling at the northernmost stations.

Fig. 3 is given to show the type of pressure distribution that prevails in midsummer, and especially the effect of thunderstorms in lowering the temperature. In this connection it will be observed that the daily minimum temperature is quite likely to occur as the result of an afternoon thunderstorm. (See the St. Louis curve for July 11, 1904.) It will be seen by examining the curves in figs. 1 and 2 that the diurnal range in temperature is also much disturbed by the movement of cyclones and anticyclones; thus there is a tendency toward a very great daily range in passing quickly from the warm southerly winds of the cyclone to the cold northwest winds of the anticyclone. For a different reason the daily range of temperature on the second day is likely to be small, since the influx of cold air is frequently strong enough to counteract the influence of solar radiation in producing an afternoon maximum. (See the record for Dubuque, February 28, 1902–March 1, 1902, fig. 2.)

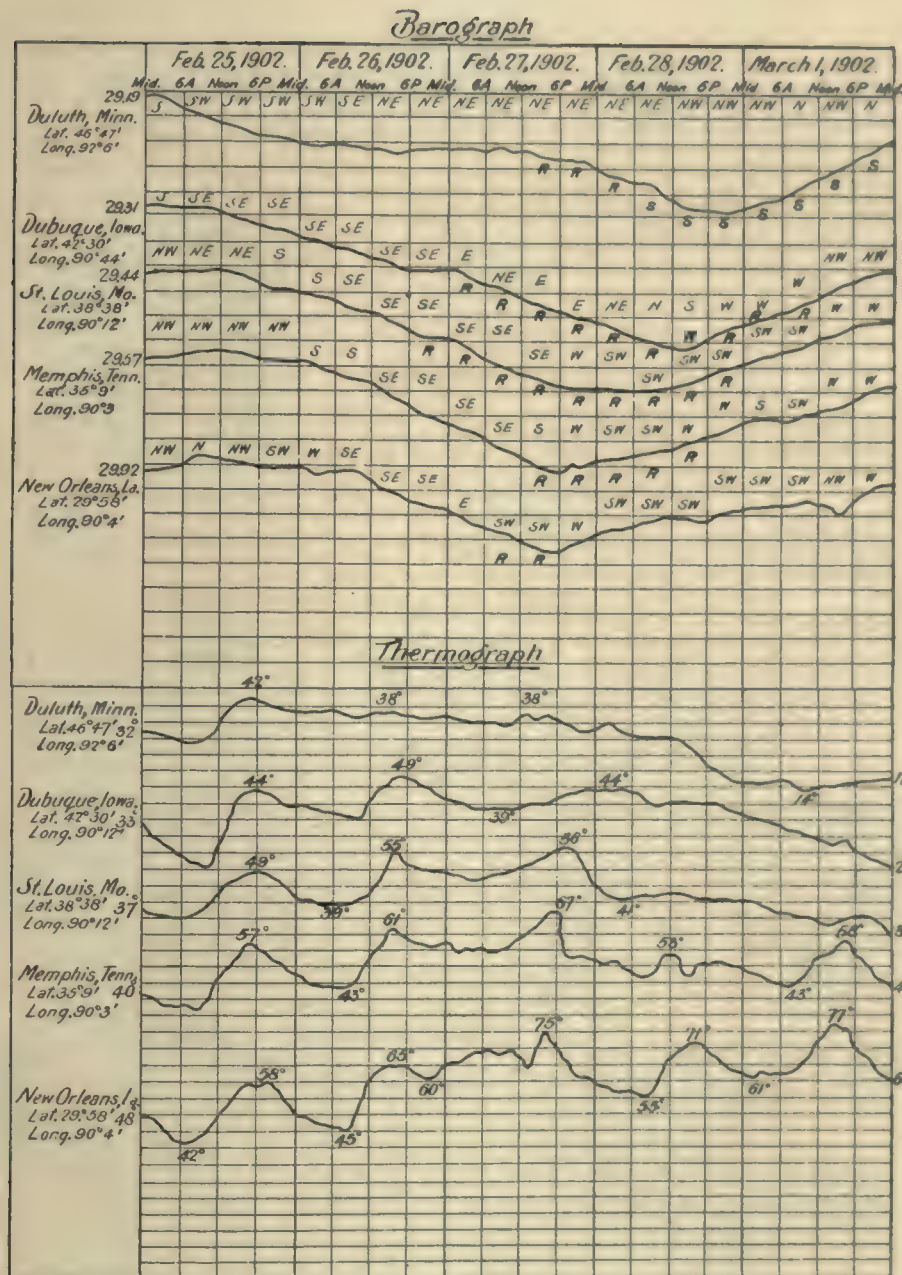


FIG. 2.—Barograph and thermograph curves during the passage of a slow-moving cyclone and its attendant anticyclone across the ninetieth meridian.

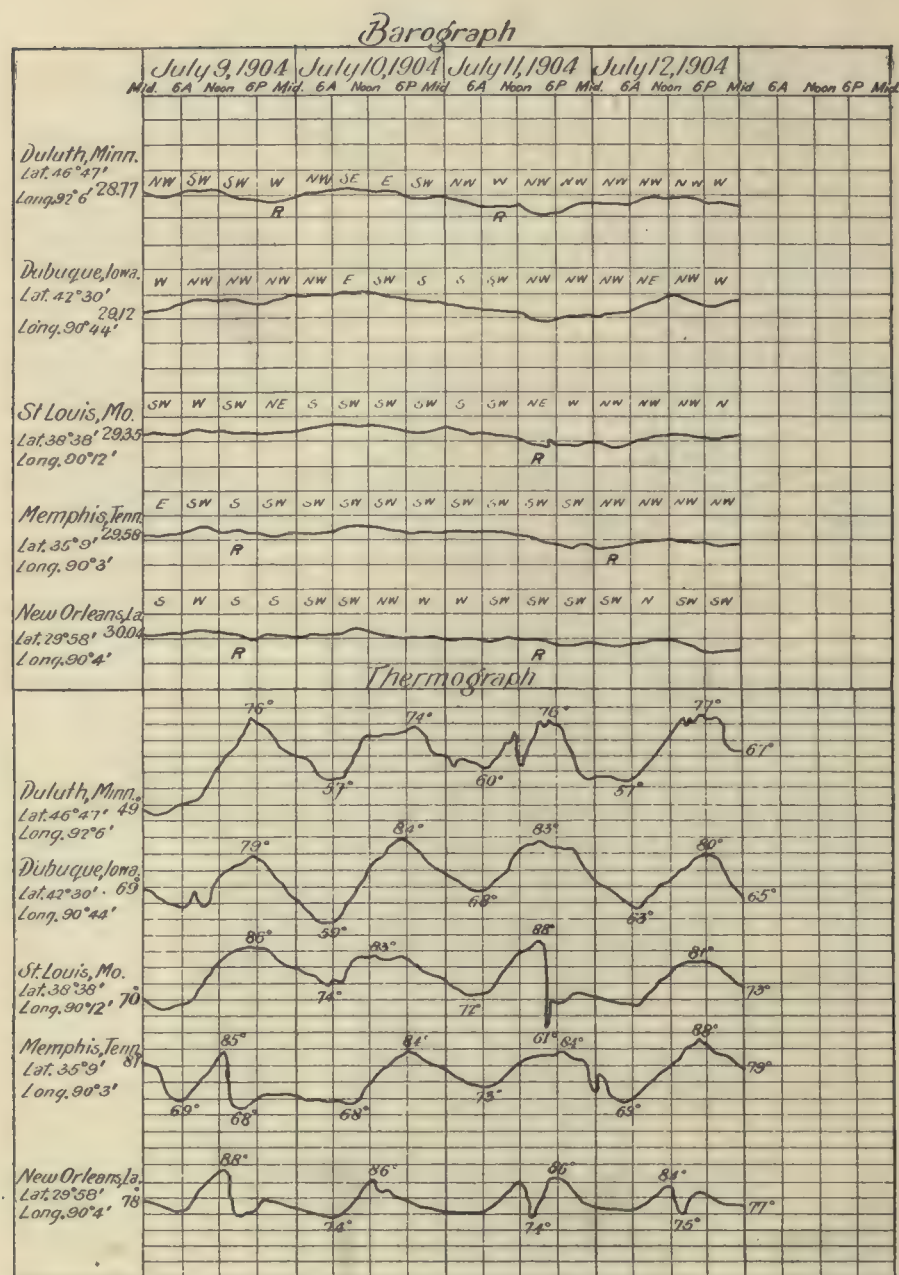
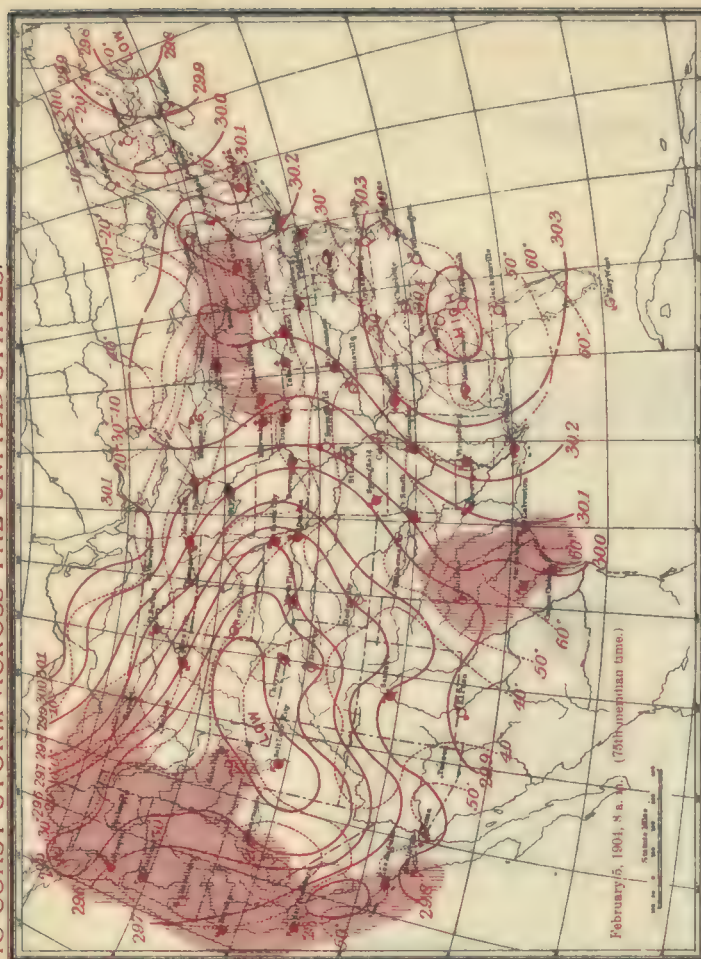
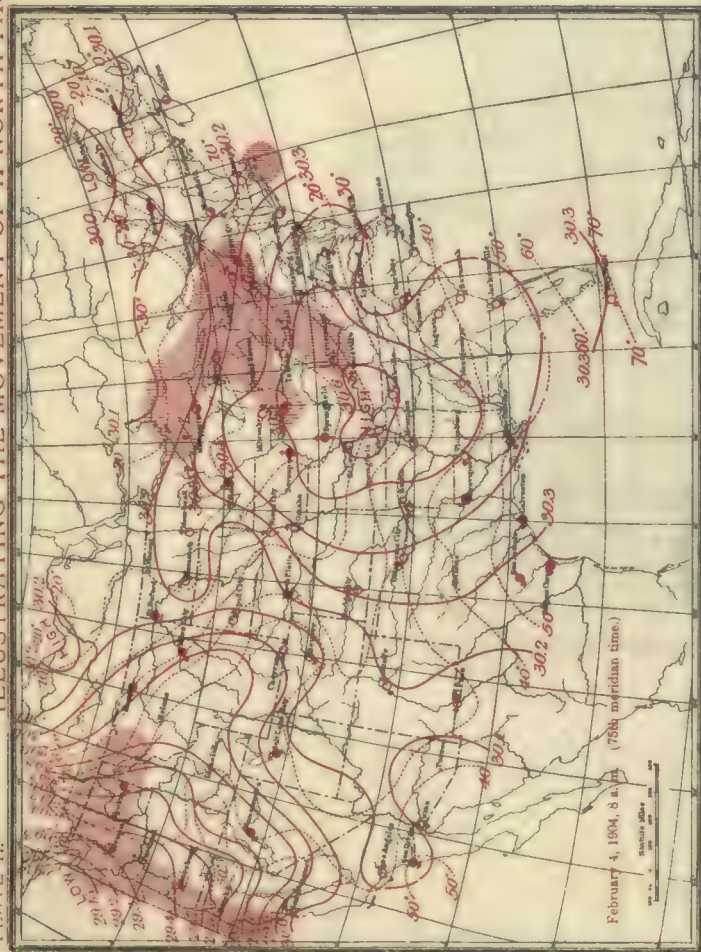


FIG. 3.—Barograph and thermograph curves during midsummer as compared with those of the winter season.

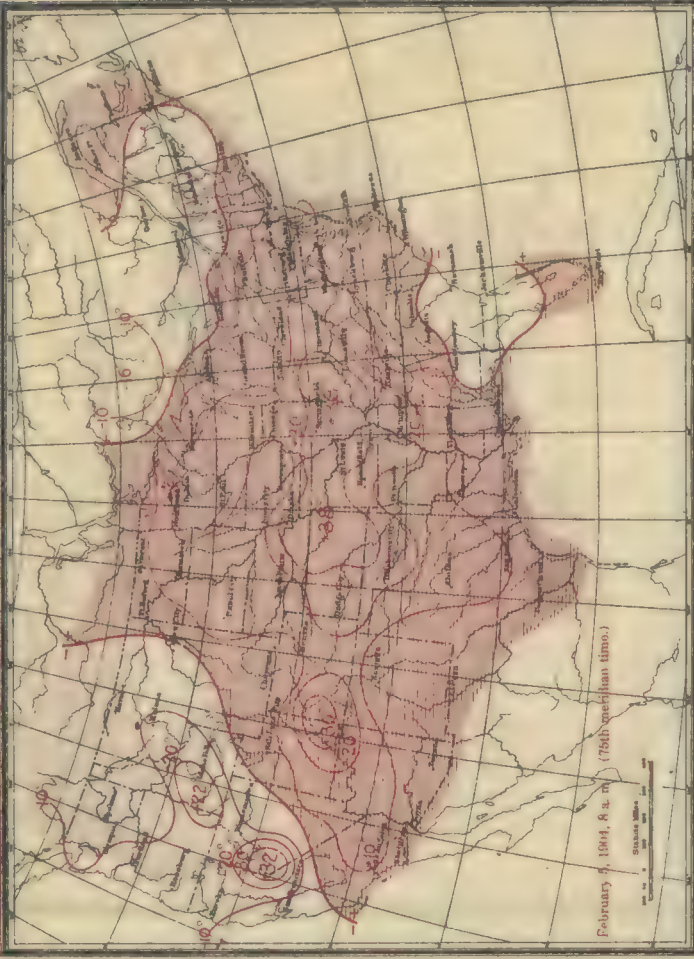


PLATE II.
ILLUSTRATING THE MOVEMENT OF A NORTH PACIFIC COAST STORM ACROSS THE UNITED STATES.





TEMPERATURE CHANGES IN 24 HOURS, FEBRUARY 4-7, 1904 8 A. M.



NUMBER OF DAYS IN 1904 ON WHICH THE DAILY EXTREMES OF TEMPERATURE OCCURRED AT IRREGULAR HOURS OWING TO THE PASSAGE OF CYCLONES AND ANTICYCLONES.

Stations.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
<i>Eightieth meridian west longitude.</i>																										
Erie, Pa.....	12	18	15	13	11	10	9	8	6	10	6	10	4	6	2	10	7	12	9	9	6	9	13	13	100	128
Elkins, W. Va.....	7	11	9	9	7	11	5	12	4	6	0	7	0	8	0	6	1	8	1	11	6	11	7	14	47	114
Charleston, S. C.....	5	7	6	8	2	10	4	7	3	2	0	4	0	6	0	6	0	3	3	5	1	5	6	7	30	70
<i>Ninetieth meridian west longitude.</i>																										
Duluth, Minn.....	5	12	12	8	10	8	4	6	6	7	6	11	2	7	3	6	6	5	10	11	6	8	15	10	85	99
Davenport, Iowa.....	6	7	10	11	5	9	3	6	3	6	0	6	0	3	1	4	4	9	1	10	2	7	9	12	44	90
St. Louis, Mo.....	8	11	12	8	7	7	4	5	3	6	2	3	0	3	2	7	2	6	1	5	3	3	9	12	44	76
Memphis, Tenn.....	6	8	6	10	4	9	6	8	2	6	0	4	1	6	0	4	1	4	1	4	3	3	6	5	36	71
New Orleans, La.....	5	9	2	5	1	8	0	1	0	2	1	8	4	8	2	7	3	4	0	1	2	6	5	10	25	69
<i>One hundredth meridian west longitude.</i>																										
Bismarck, N. Dak.....	15	18	8	11	5	13	1	6	2	5	1	7	2	7	0	6	0	6	1	6	6	8	11	13	52	106
North Platte, Nebr.....	2	6	2	5	2	7	3	6	1	5	0	8	0	7	2	7	2	6	3	8	2	6	2	9	21	80
Abilene, Tex.....	3	11	3	9	2	7	1	7	0	5	1	3	0	1	0	3	2	4	2	6	2	7	2	11	18	74
<i>One hundred and tenth meridian west longitude.</i>																										
Havre, Mont.....	11	20	7	16	5	11	2	3	2	6	1	3	1	3	1	2	0	3	2	4	2	8	9	15	43	94
Yellowstone, Wyo.....	2	12	4	11	4	18	2	5	3	7	0	5	1	2	2	6	0	3	1	5	2	7	4	11	25	92
Salt Lake, Utah.....	3	9	6	7	4	11	4	5	1	3	1	2	0	5	0	2	0	4	1	5	0	4	6	8	26	65
Phoenix, Ariz.....	1	1	0	1	0	2	0	0	0	1	0	0	0	1	0	4	0	1	0	2	0	1	0	2	1	16
<i>One hundred and twentieth meridian west longitude.</i>																										
Spokane, Wash.....	4	10	5	7	3	6	2	4	2	3	0	3	1	3	0	1	0	0	0	5	2	9	2	10	21	61
Baker City, Oreg.....	3	10	5	14	3	11	1	7	1	6	0	6	1	4	0	3	0	2	3	7	3	12	4	8	24	90
Carson City, Nev.....	1	6	3	8	3	11	2	7	1	3	0	2	0	1	0	1	0	0	1	4	1	4	2	6	14	53
Fresno, Cal.....	0	3	0	5	1	7	0	4	0	1	0	0	0	0	0	2	0	1	0	3	0	3	2	10	3	39
<i>Pacific coast.</i>																										
North Head, Wash.....	11	10	8	10	5	9	8	10	2	7	3	4	5	5	3	5	4	11	7	10	12	13	12	17	80	111
Eureka, Cal.....	1	5	7	13	7	9	3	4	4	2	2	1	1	3	0	2	1	4	1	6	3	12	7	10	37	71
San Francisco, Cal.....	1	1	4	7	2	9	1	7	3	8	5	6	3	2	1	4	2	7	0	4	1	3	2	3	25	61
San Diego, Cal.....	0	2	2	4	1	7	1	3	1	3	3	6	0	6	1	4	1	3	1	4	2	2	2	5	15	49

North Pacific coast cyclones.—The first series of maps, February 4–7, 1904, shows the movement of a cyclone from the North Pacific coast, where it was central on the morning of the 4th, to the lower Lake region on the morning of the 7th. The shaded areas on the several maps indicate the regions of precipitation during the previous twenty-four hours. Thus, on the map of February 4 it will be noted that there was considerable precipitation in the lower Lake region, due to a cyclone which passed off to sea over the Canadian maritime provinces on the morning of the 3d; also, that the rain area on the Pacific coast extended to western Montana, eastern Oregon, and along the coast of California from San Francisco northward. It will also be noted that the interior valleys were occupied by an anticyclone, whose crest rested over the lower Ohio Valley. The movement of both cyclone and anticyclone is shown on the succeeding maps. The twenty-four-hour temperature changes due to the cyclonic movements above described are shown on a separate series of maps covering each of the four days. (Pl. III.)

Cyclonic storms of the North Pacific coast type occur with considerable frequency from November to March, inclusive. They reach their fullest development when the Canadian

provinces north of Montana are occupied by an anticyclone that is constantly being renewed from the north and from whose southern edge offshoots are sent southeastward in the rear of North Pacific coast cyclones. This same continuity of action is apparent in the cyclones as well as in the anticyclones, as may be understood by reference to the maps themselves. Thus it will be noted that on the morning of February 5, while pressure had risen over Washington and Oregon in the rear of the cyclone whose center had advanced to Wyoming, it was still low as compared with the distribution over the northeastern Rocky Mountain slope and the Canadian provinces east of the Rocky Mountains. The rise in pressure in the rear of the retreating cyclone was very slight, and by the morning of the 6th a fresh cyclone had appeared along the Washington and Oregon coasts. Pressure began to rise on the 7th and continued rising on the 8th and 9th. On the 10th still another disturbance appeared off the Oregon and Washington coasts, and the cycle was continued with slight variations until the 17th, when the weather cleared under the influence of an area of high pressure that advanced from the Pacific Ocean eastward over Washington and Oregon. The period of cloudy and rainy weather ceased on the 17th and no rain fell on the 18th, but on the 19th a fresh disturbance appeared from the westward and inaugurated a second period of cloudy or rainy weather, which continued with but few intermissions until the end of March.

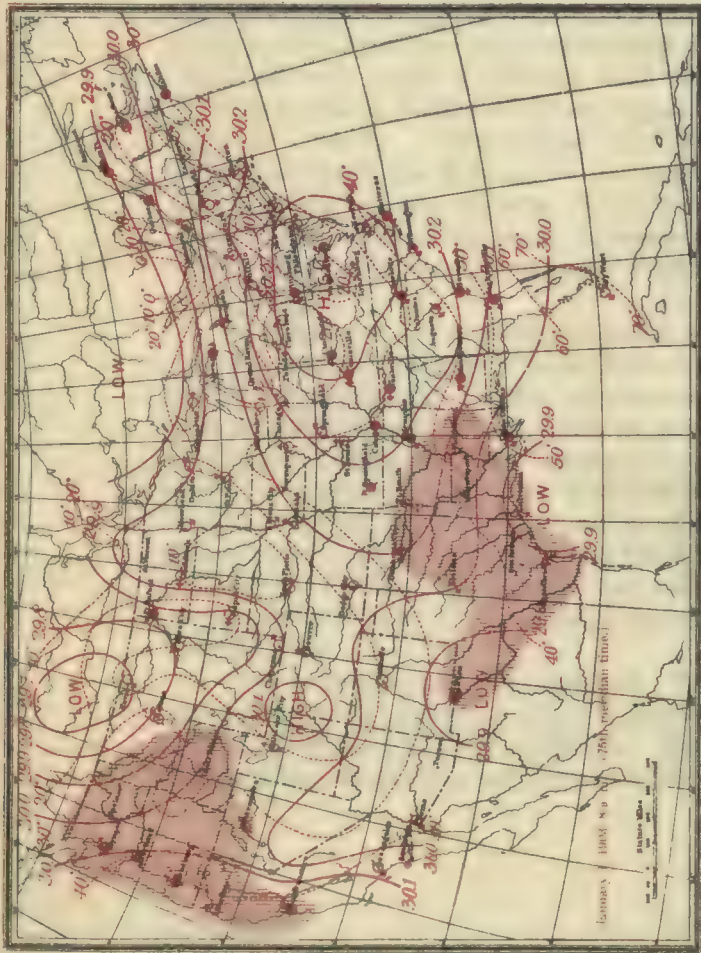
The chief characteristics of the North Pacific type may be summarized as follows: (1) Continued high pressure over the northeastern Rocky Mountain slope and east of the Canadian Rockies and low pressure west of the Rocky Mountains; (2) a more or less regular procession of cyclones moving southeastward over the Plateau region, crossing the Rocky Mountains between the parallels of 35° and 45° north latitude and moving thence east-northeast to Atlantic coast districts; (3) the development of anticyclones in the rear of the cyclone after the latter has crossed the Rocky Mountains. In considering the influence of the Rocky Mountains on the climate in general it should be remembered that the cyclonic circulation takes place in the layers of air a mile or so above the earth's surface and that the mountains' crests offer no serious bar to the advance of cyclones and anticyclones. In this connection attention is invited to the weather map of February 7, and especially to the steepness of both barometric and thermometric gradients over the northern Rocky Mountain region. It would appear on first sight that the wind should blow from the region of high pressure toward the region of low pressure, which in this case is on the western side of the range. Accordingly, the winds over the northern Rocky Mountain region should be northeast or east, but as a matter of fact they are westerly. The explanation of this apparent anomaly probably lies in the fact that the low temperatures depicted on the map are confined to the surface layers only and that the true temperature and pressure distribution is not shown by the surface charts. The winds across the summits of the range are westerly at all seasons of the year, and it is quite probable that in this particular case westerly winds and moderate temperatures prevailed to the crests of the range.

In the absence of marked anticyclonic conditions the fall in temperature on the Pacific coast and over the Plateau region in the rear of a cyclone is not so pronounced as in districts east of the Rocky Mountains. Again referring to the map of February 7, it will be noted that an area of colder weather of considerable geographic extent appears in the Missouri and middle Mississippi valleys and that the anticyclone north of Montana has increased in intensity and spread southeastward over the Dakotas, Kansas, and Nebraska. This southeastward movement is the first step in the formation of a strong anticyclone, which in the next twenty-four hours swept southeastward into the Ohio Valley, Tennessee, and the Lake region and carried the line of freezing temperature into northern Mississippi, northern Alabama, eastern Tennessee, and Virginia. The advance eastward of the fall in temperature is graphically shown on Plate III.

The southwestern type of cyclones.—The second series of maps, January 1–4, 1903, shows the development and northeastward movement of a cyclone which was first observed over the western portion of the Gulf of Mexico. The distinguishing characteristics of southwestern lows are rapid northeastward movement and heavy rainfall throughout the Gulf and Atlantic coast



PLATE IV.
ILLUSTRATING THE MOVEMENT OF A SOUTHWEST STORM ACROSS THE UNITED STATES.





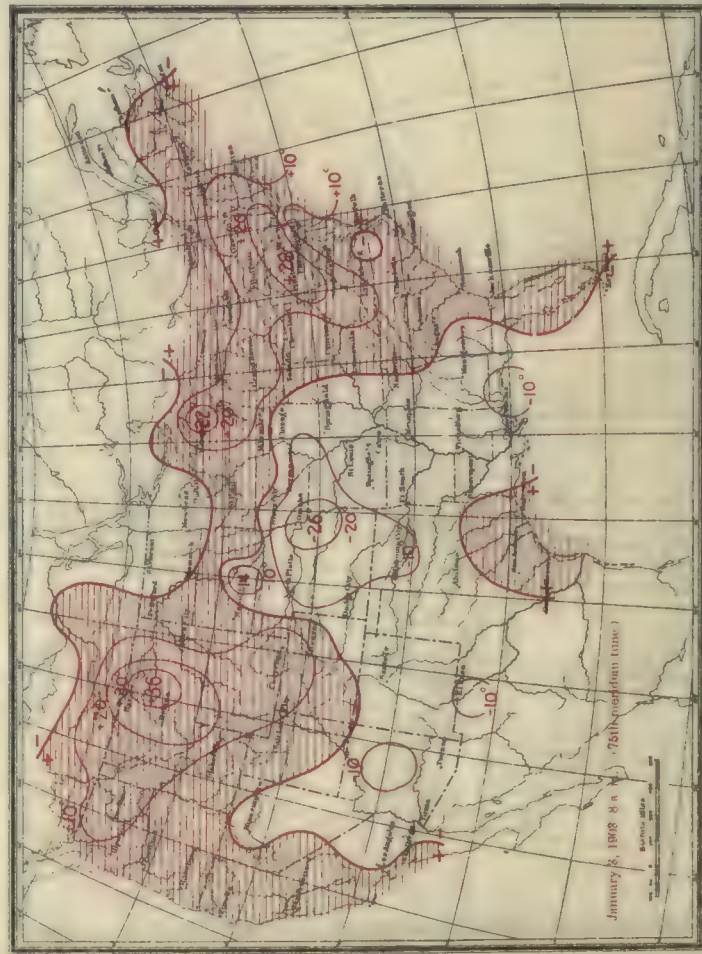
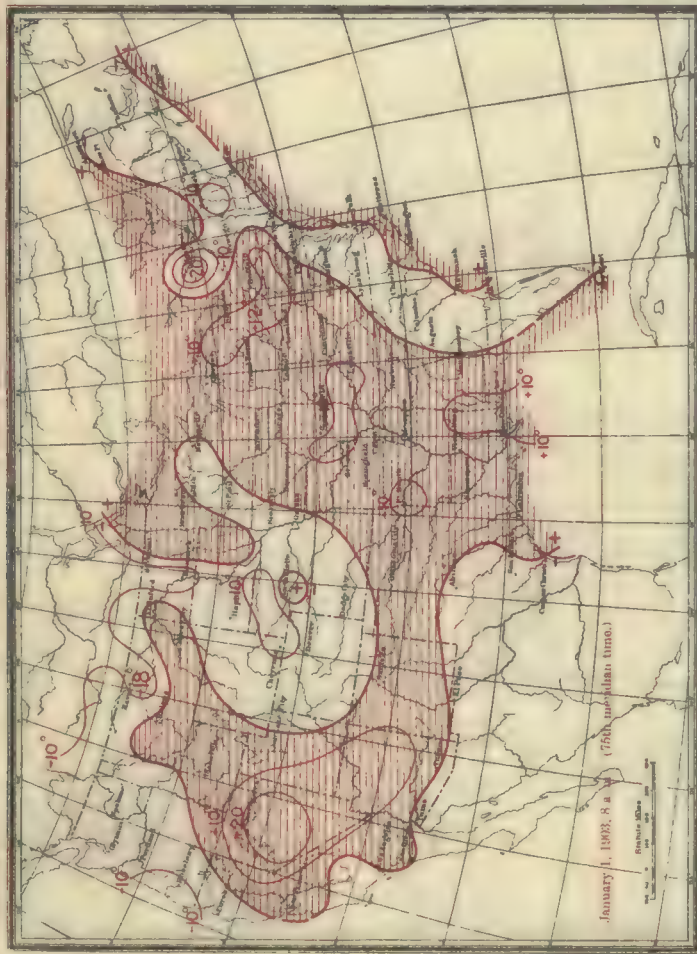
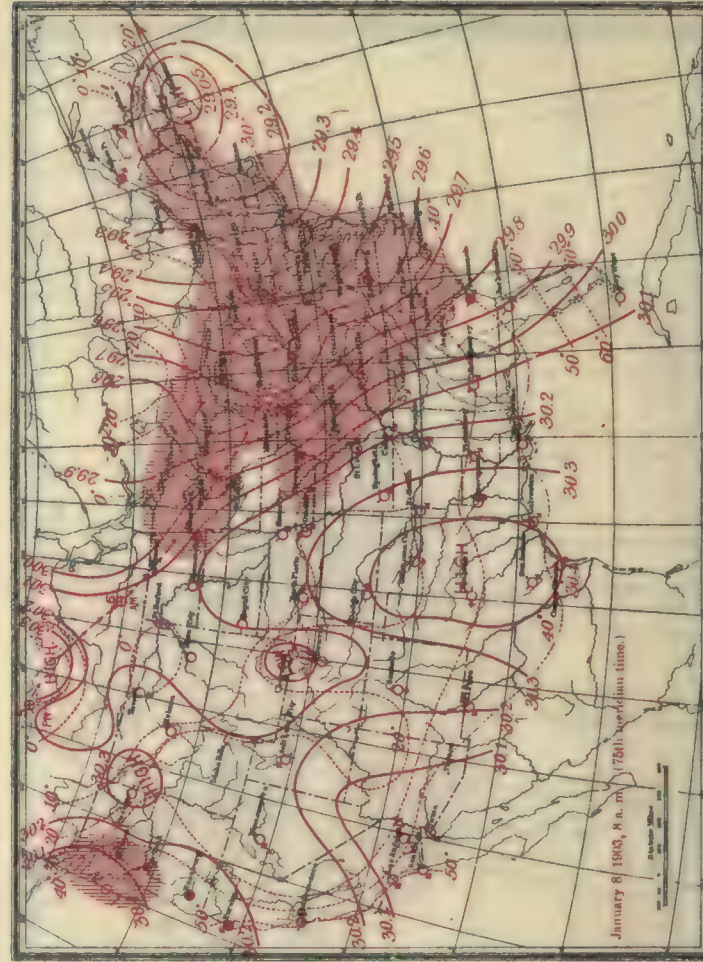
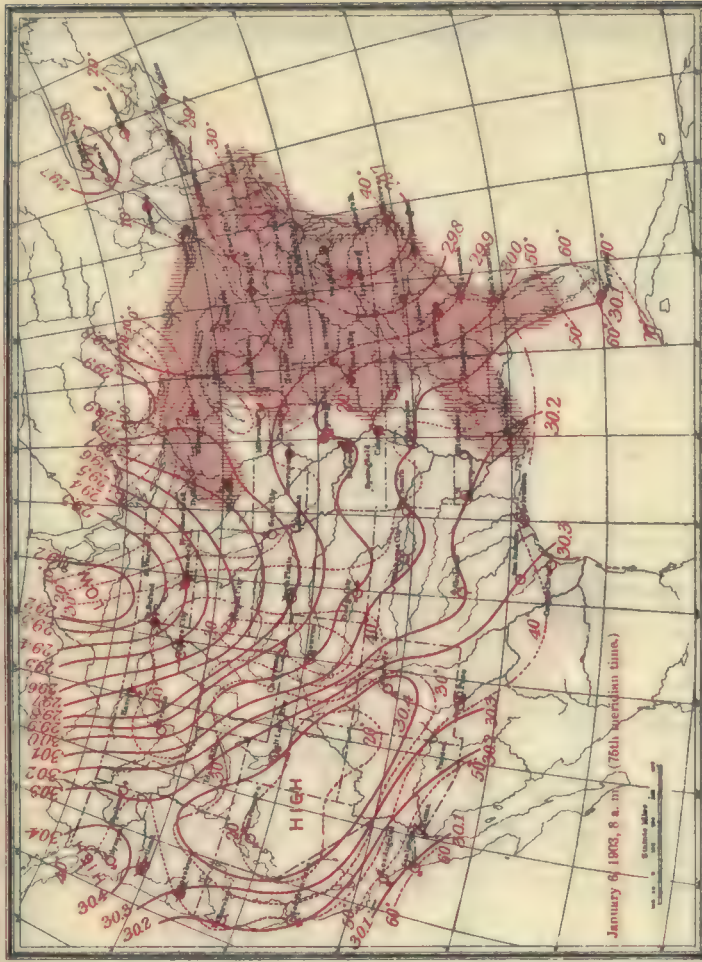
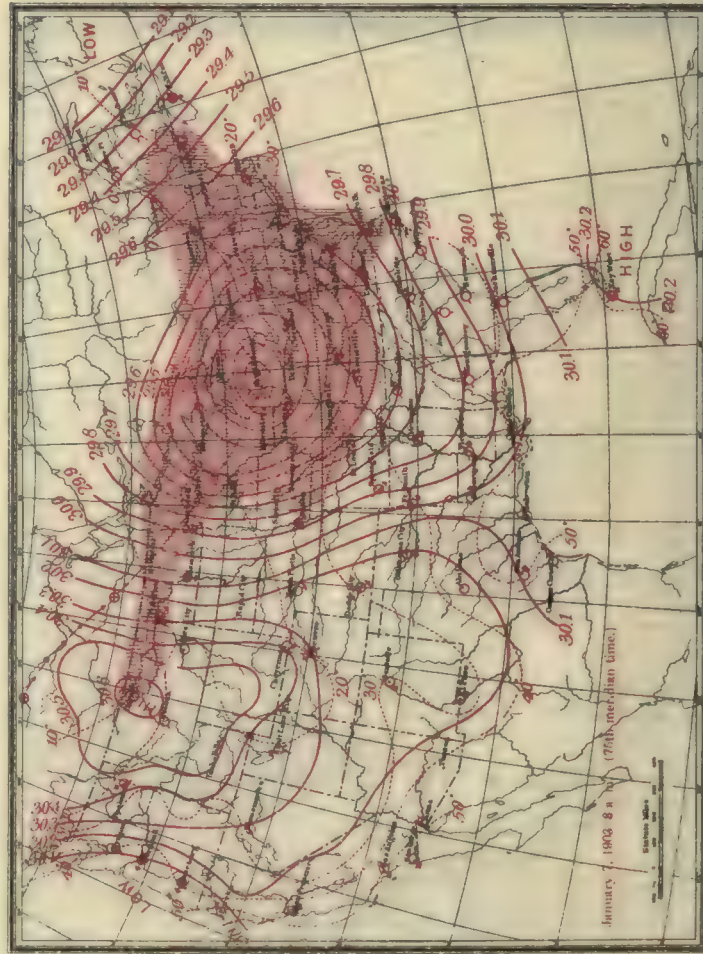
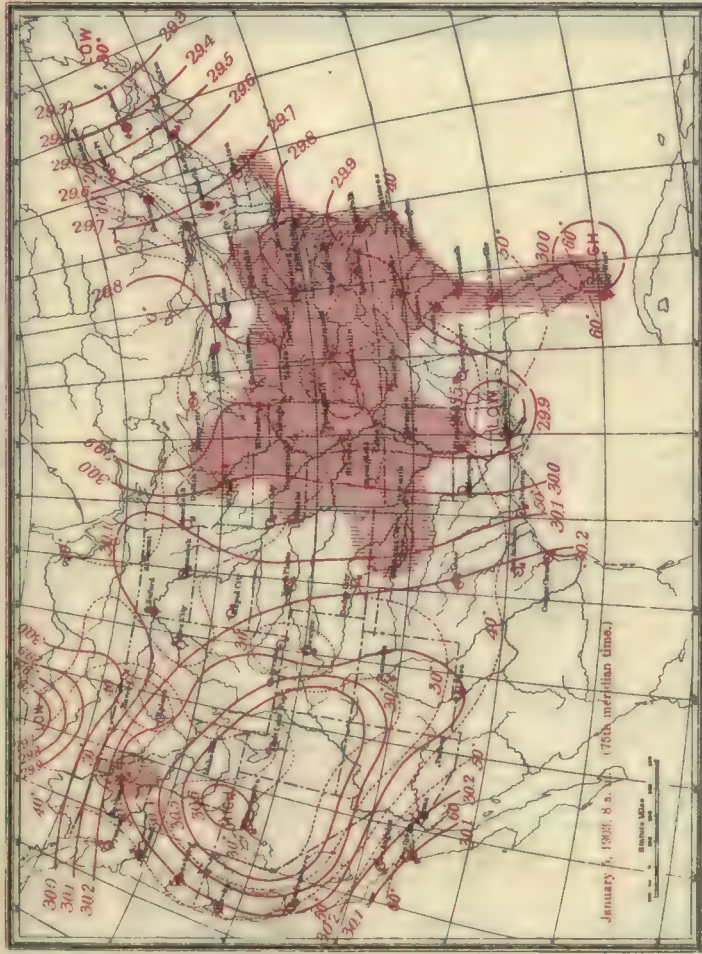
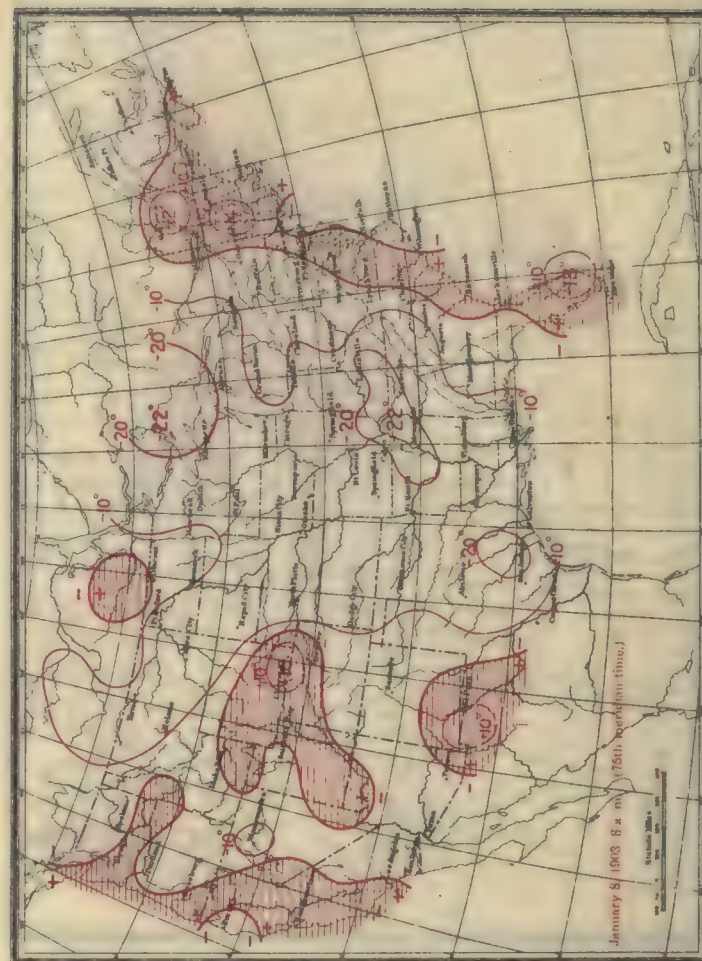




PLATE VI. ILLUSTRATING THE MOVEMENT OF A NORTHWEST STORM ACROSS THE UNITED STATES.







States. In case the eastern slope of the Rocky Mountains is occupied by an anticyclone, the temperature falls sharply in the rear of the cyclone, and the weather clears quickly. In the case under consideration it will be noted that anticyclonic conditions did not prevail over the eastern slope of the Rocky Mountains, and accordingly the temperature changes in the rear of the cyclone were not well marked. The series of maps, January 1-4, show also the building up of an anticyclone over the Great Basin, and the maps of the 5th, 6th, 7th, and 8th show the movement of a cyclone from the region north of Montana to the New England coast, with the attendant areas of precipitation and temperature changes. On the weather map of January 3 a faint cyclone with an area of warmer weather appears over Montana and the region to the northward. The next morning this cyclone has advanced to western Iowa, with scattered precipitation in its rear. In the meantime two cyclonic centers have been formed over the Southeastern States, and general rains have fallen in the east Gulf and South Atlantic States and the southern portion of the Ohio Valley. The southeastern cyclones passed eastward over the Atlantic during the next twenty-four hours, and the depression central in western Iowa continued its eastern march, developing two centers by the morning of the 5th, which merged in a single center off the New Jersey coast by the morning of the 6th. The maps of the 3d, 4th, 5th, and 6th cover a period of uncertain storm development and movement and present some of the difficulties encountered in forecasting the weather from synoptic charts. The development of a fresh storm center over the Southeastern States on the morning of the 4th could hardly be anticipated.

The advent of spring.—The charts thus far presented illustrate in a manner the turbulent circulation of winter which results by reason of the sharp contrasts in temperature between the equator and the poles. The interior of the continent in that season is much colder than the adjacent oceans, and there also exists a sharp north and south temperature gradient between the barren frozen grounds of British North America and the Gulf of Mexico. Over all of this great region there is a continual alternation of cold northerly and warm southerly winds, the frequency of each wind being determined by the number of cyclones and anticyclones that pass across the country from west to east. At the close of winter a general movement toward a complete temperature inversion begins. The warming-up process is first observed to the southward and westward. In these regions, especially on the Pacific coast, there is more or less plant activity throughout the winter, and therefore there is no real awakening of physiological life in plants and trees as in the north. In the Plateau and Rocky Mountain regions, while high temperatures may prevail in the daytime, the temperatures of nighttime are low, and frost is probable during March, April, and May, and on the higher levels in June and July, so here also the advent of spring has less significance than in the country east of the Rocky Mountains. The statement that spring advances from the south and west is strictly applicable to the northern portions of the three great interior valleys, the Missouri, Mississippi, and Ohio. Farming operations are possible in the Missouri Valley somewhat sooner than in the Ohio Valley and very much sooner than in the Lake region and New England. The last part of the country to yield to the oncoming of spring is the upper Lake region and New England. The Great Lakes undoubtedly retard the advent of spring owing to the slowness with which the lake waters become warmed.

The change from the cold of winter to the warmth of spring is not accomplished gradually day by day, but by successive and irregular advances and retreats, each advance of warmer weather penetrating a little farther into the cold interior, and each successive chilling halting a little north of the southern limit of its predecessor, until finally all portions of the interior become warmer than the adjacent oceans, and summer conditions are firmly established. The cyclonic effect, which was all powerful in winter and early spring, now, as a result of the changed temperature conditions, becomes comparatively feeble. The winds are light and variable except when the general equilibrium of the air is disturbed by local thunderstorms.

Summer weather types.—The weather conditions in summer are illustrated by a single series of maps, viz, those from July 1-4, 1901, Plate VIII. It may be remarked in connection with these maps that while they are typical of midsummer conditions, at the same time they also illustrate the pressure distribution favorable to extremely hot weather east of the Rocky Mountains.

The paths of cyclones, which in winter often loop southward to the Gulf of Mexico, are now confined almost wholly to the northern border, and as a consequence the weather elsewhere is devoid of those marked changes in temperature and the alternations from fair to rainy weather so characteristic of winter and spring. In the northern tier of States from the Rocky Mountains to New England, the changes in temperature due to the eastward movement of cyclones and anticyclones is fairly well marked even in summer, although several weeks may pass without a decided change in temperature. The cooler air that overlies the Great Lakes affords relief from the extremely warm weather that occasionally prevails in summer. The lake influence is felt only, however, when the winds are onshore, and then only over a narrow coastal strip probably not more than 10 miles in width on the average.

On the Pacific coast and in the Southern States, the weather of summer is rather constant from day to day. The changes in temperature are small and unimportant. Summer is the dry season on the Pacific coast, although it should be remembered that some rain falls in both Washington and Oregon and on the higher altitudes of California. The Southern States receive generous rains in summer almost wholly in the form of thunderstorms. The effect of these on temperature is insignificant unless they occur very generally over a considerable area, when a material fall may be expected.

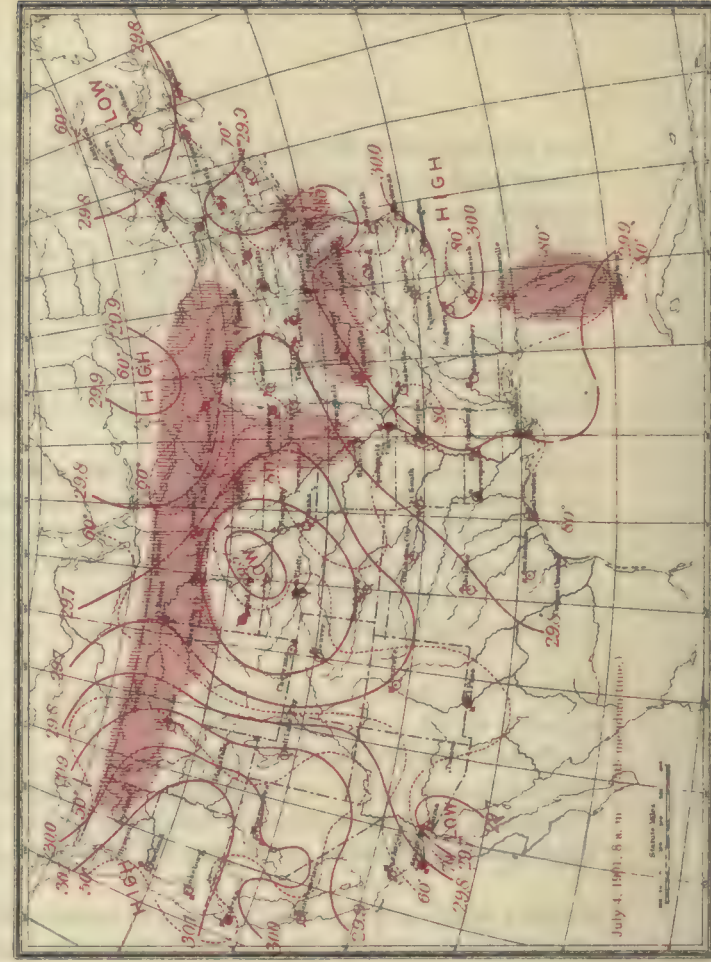
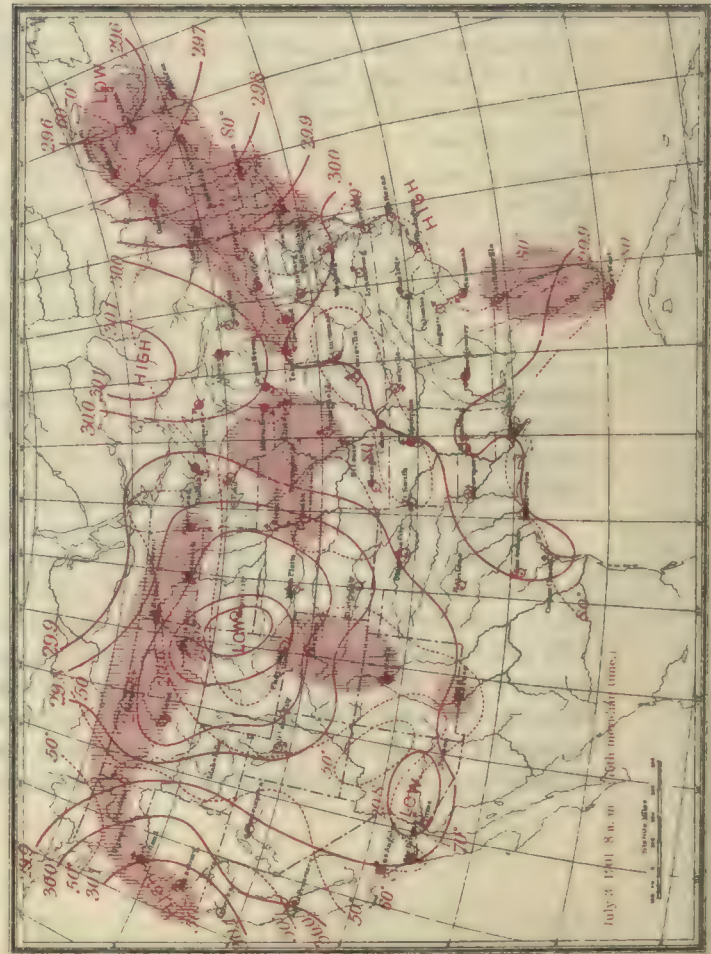
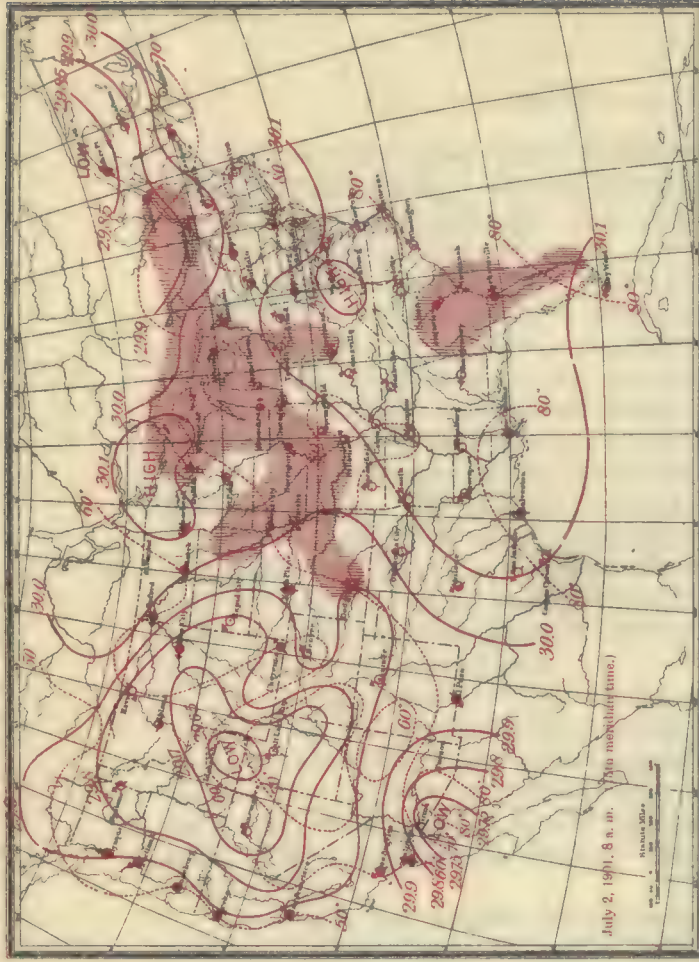
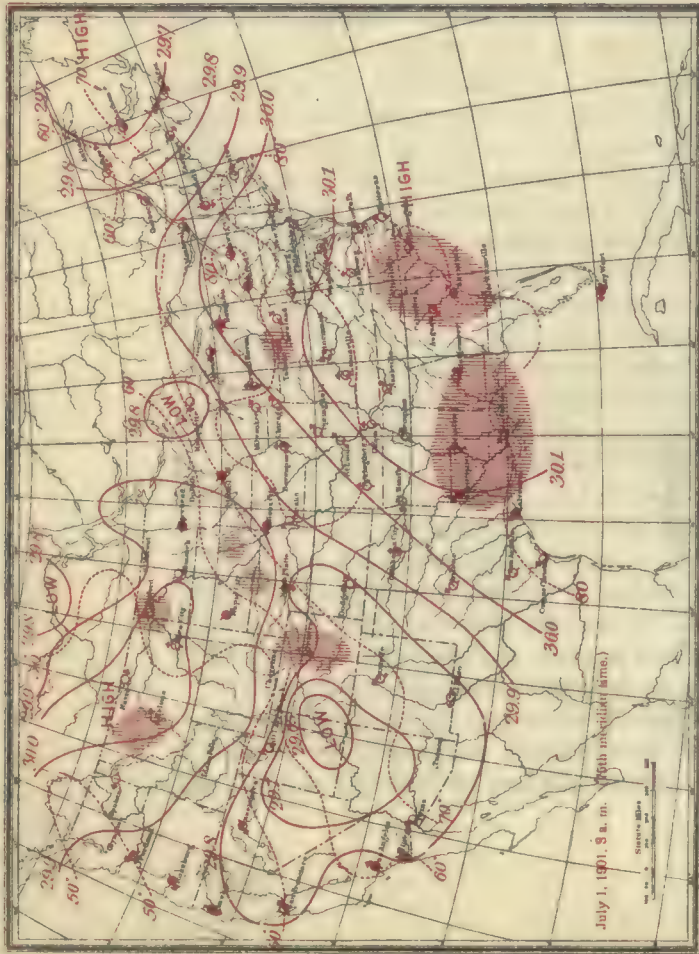
The weather of the interior valleys east of the Rocky Mountains in summer is largely controlled by the intensity and persistence of the South Atlantic anticyclone. If the latter is weak and gives way under the influence of shallow barometric depressions that approach from the west, then the weather will be showery, with moderate temperatures. If, on the other hand, the South Atlantic anticyclone is of good strength and maintains its position against all disturbances which approach from the west, then showers will be infrequent, with abnormally high temperatures.

Hot-weather type in northeastern districts.—The series of maps, July 1-4, 1901, Plate VIII, as before stated, illustrate the pressure distribution that causes abnormally high temperatures in the interior valleys and eastern districts. It will be observed that while pressure is not unusually high the geographic extent of the southeastern anticyclone is very great, the area to the south-eastward of the central point on the isobar of 29.90 inches on the map of July 1 equaling at least half of the United States. If the map could be extended to include the Atlantic Ocean south of the fortieth parallel, it would doubtless be found that the crest of the high was somewhere in the vicinity of the Azores with pressures between 30.20 and 30.30 inches. Considering the magnitude of the anticyclone, stretching as it does from the coast of Africa to the lower Mississippi Valley, it is apparent that the eastward movement of the small cyclone in the Lake Superior region will not materially alter the form of the anticyclone nor reduce its geographic extent. By reference to the third and fourth maps of the series, it will be seen that while the position of the South Atlantic anticyclone has not changed materially, its strength has been slightly reduced, as indicated by the retreat to the southeast of the isobar of 29.90 inches (note the position of the isobar of 29.90 inches). The pressure distribution above noted produces southerly winds over the Mississippi Valley and thence eastward to the Atlantic, and so long as the anticyclone over the southeastern districts maintains its position these winds will continue. It may be mentioned as a matter of historic interest that the temperatures at Philadelphia, Baltimore, and New York City, at 8 o'clock a. m., July 2, 1901, were 92°, 90°, and 88°, respectively. The subject of hot waves will be further discussed in a subsequent portion of this volume.

The temperature changes, July 1-4, are shown on Plate IX. These charts show that a fairly large number of changes occurred, principally over the Plateau and Rocky Mountain regions and in the northern portion of the central and eastern districts. Attention is called to the amount of the summer changes as compared with those of winter (see Plates III and IX).

The pressure distribution figured on the above-mentioned series of maps is not favorable to general precipitation east of the Rocky Mountains. The conditions that favor precipitation in summer are barometric disturbances moving eastward with shallow trough-like extensions that reach as far south as the Ohio Valley. The number of these disturbances and the distances

ILLUSTRATING SUMMER TYPE OF STORM MOVEMENT.





TEMPERATURE CHANGES IN 24 HOURS, JULY 1-4, 1901-8 A. M.

PLATE IX.



they extend southward into the interior of the country determine in great measure the character of the weather of the month and the amount of rainfall.

The temperature distribution of winter and summer compared.—We have now seen that the temperature distribution in summer is markedly different from that of winter; that the interior of the continent is warmer than the oceans and that the isotherms (lines of equal mean temperature), which in winter bend to the southward in passing from the Pacific to the Atlantic, now bend to the northward. In winter the differences in mean temperature in passing from the relatively warm Gulf coast to the cold pole of the interior are as much as 65° to 70° ; this fact is shown on the January chart of mean temperature, Plate XI, by the crowding together of the isotherms. In summer the converse is true; the July mean temperatures of the Gulf coast and of Manitoba are not so widely different, about 20° , as may be seen by examining Plate No. XII.

We have also seen that, as a consequence of the very weak temperature gradients of summer, the winds are light and variable as compared with the strong westerly winds of winter; that the eastward drift of cyclones and anticyclones is slow and, at times, uncertain. These conditions obtain during the months of June, July, August, and September.

The transitional months of autumn.—The months of transition from warm to cold, viz, October and November, are characterized by the most delightful weather of the year. The excessive heat of the long summer days gives way to the incursions of cool, bracing air from the north; the air becomes drier, and the skies are for the most part free from clouds. At this time of the year the atmosphere sometimes becomes smoky or hazy, with temperatures slightly above the normal for the season. These distinctive features of autumn, to which the name of Indian summer has been given, were observed by early settlers and pointed out as characteristics of the American climate. (Albert Matthews in *Monthly Weather Review*, January, 1902.)

The transitional months of spring.—The weather of the months of transition from the cold of winter to the warmth of summer, viz, March and April, is quite unlike that of the transitional months of autumn. The contrasts of temperature in the spring months are always sharp and the winds are strong and boisterous. The movement of cyclones and anticyclones is less regular than that of winter, and there is a marked tendency of cyclones to move north-northeasterly along the eastern slope of the Rocky Mountains and disappear in the Hudson Bay region. At such times the contrast between the weather of the Rocky Mountain region and the Mississippi Valley is most striking. In the Mississippi Valley brisk southerly winds and high temperatures prevail, the thermometer registering as high as 70° in the afternoon; in the Rocky Mountain region, on the other hand, the surface winds move from the northeast and north, and the temperatures range from 30° to 40° . Snow falls in the mountains and frequently over the eastern foothills; indeed, the heaviest snowfall of the year in the middle Rocky Mountain districts may fall in the spring months.

Special weather types.—In the spring and fall months there is often a slow movement of anticyclones from the interior of the continent southeastward over the lake region to the middle Atlantic coast. These slow moving highs exert a powerful influence upon the weather east of the Rocky Mountains. The temperature falls sharply as they advance southeastward in the rear of a retreating cyclone, and the winds shift from southerly to northerly, continuing in that direction for several days. Although the skies are comparatively clear, the temperature rises but slowly so long as northerly or easterly winds continue; as soon, however, as the winds go to southerly, the cloudiness increases and the temperature rises.

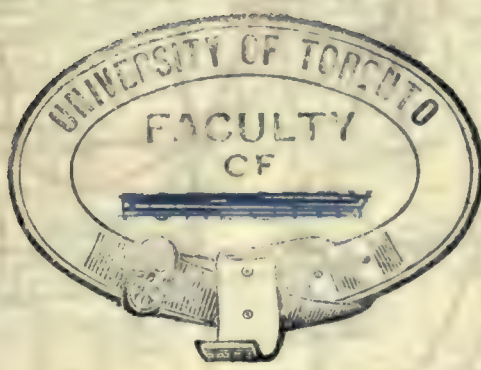
Another clearly marked type of weather prevails in Atlantic coast districts when a strong anticyclone occupies New England and the Canadian maritime provinces, particularly when it extends wedge-shaped southwestward into the South Atlantic States and eastern Tennessee, with relatively low pressure over the interior valleys. Since the air tends to move from a region of high to a region of low pressure, the winds in Atlantic coast districts will be northeasterly or from a water surface. In summer ocean winds are relatively cool, in winter relatively warm, so that the temperature effect depends largely upon the season of the year. The greatest effect is of course produced in late spring and early summer when the southerly

surface winds are replaced by relatively cool northeast winds. In the fall months, when the temperature gradient along the coast is not particularly well marked, northeast winds produce cloudy overcast skies with very little rain. The Appalachians from Virginia southward serve as a barrier across which northeast winds do not penetrate. During the prevalence of northeast winds the temperatures in Atlantic coast districts are fairly constant both day and night, the diurnal variation being almost wholly eliminated. Even temperatures with cloudy overcast skies and occasional sprinkles of rain are the chief characteristics of what may be called the northeast type of weather conditions.

Another type of pressure distribution that exerts an important control over the weather is the winter Plateau high. In the midst of the rapidly changing conditions peculiar to the winter season, an anticyclone will remain almost stationary over the Plateau region for days at a time. The pressure gradient to the northeast is often quite steep. The temperatures are low, the skies clear, and nocturnal radiation is well marked. During the continuation of the Plateau high or anticyclone, cyclones move from the region immediately east of the Canadian Rockies southeastward to the middle Missouri Valley, and thence eastward via the Lake region to the St. Lawrence Valley. They are followed by shallow anticyclones, which do not penetrate far into the interior of the country. As a result, the weather along the northern boundary from Montana eastward is exceedingly variable, the temperatures alternately rising and falling with occasional falls of snow. In the tier of States south of the fortieth parallel, these rapid alternations of weather and temperature are not felt so long as the Plateau high continues, nor is there any probability of a severe cold wave passing over the country east of the Rocky Mountains during the continuation of a Plateau high. An explanation of the Plateau effect has not as yet been offered. The evidence at hand from the Pikes Peak observations of 1893-94 tends to show that the normal air movement across the Rocky Mountains is suspended during the prevalence of a Plateau high and that a northeast to east wind prevails. In other words, the circulation of the air at that great altitude appears to be controlled by the prevailing pressure distribution.

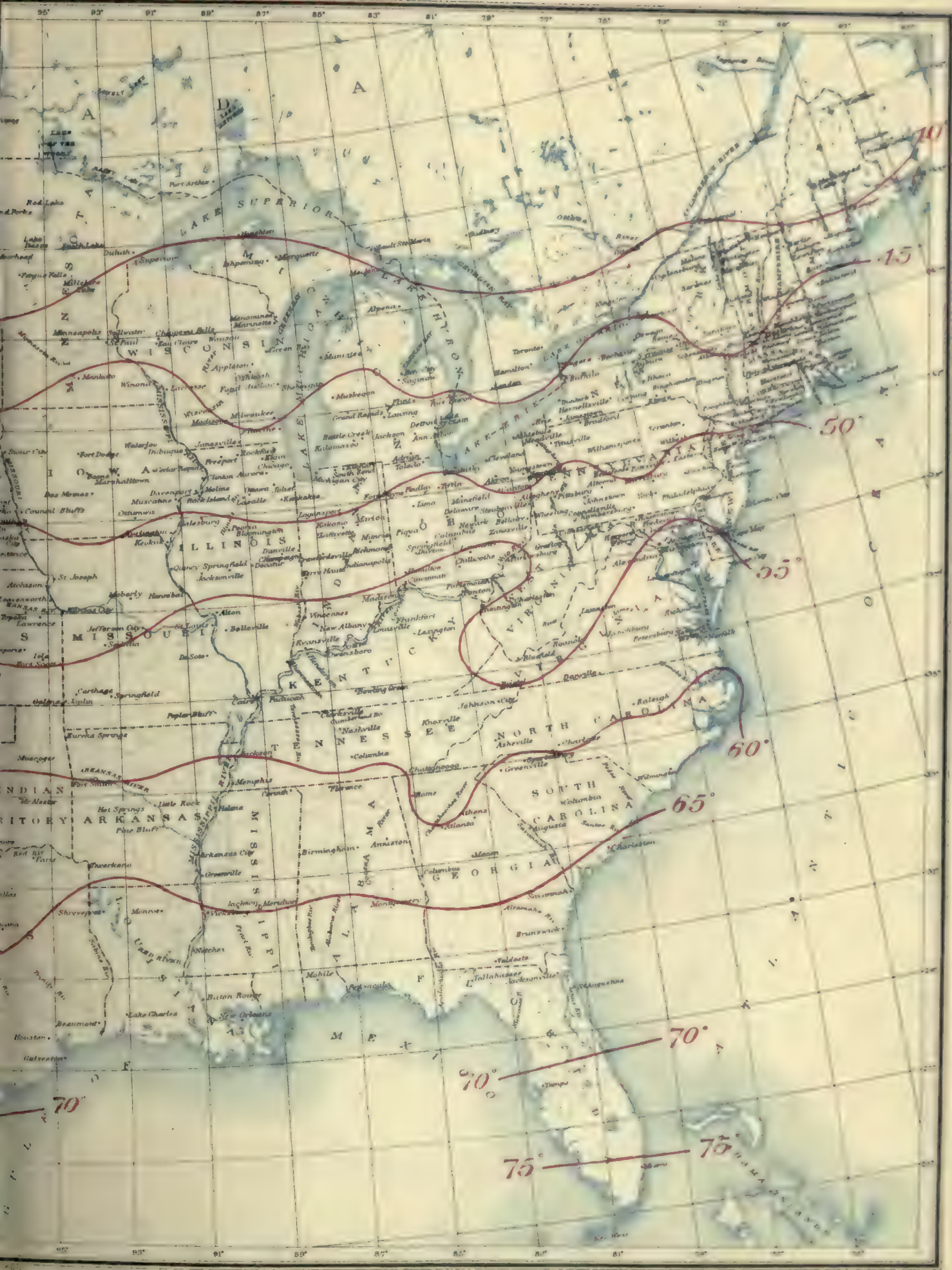
The foregoing by no means exhausts the list of special weather types; the subject, however, is so extensive that adequate treatment can not be given in this work.

STANTON & SONS, 111 N. 1ST ST. PHOENIX





TEMPERATURES FOR THE YEAR.

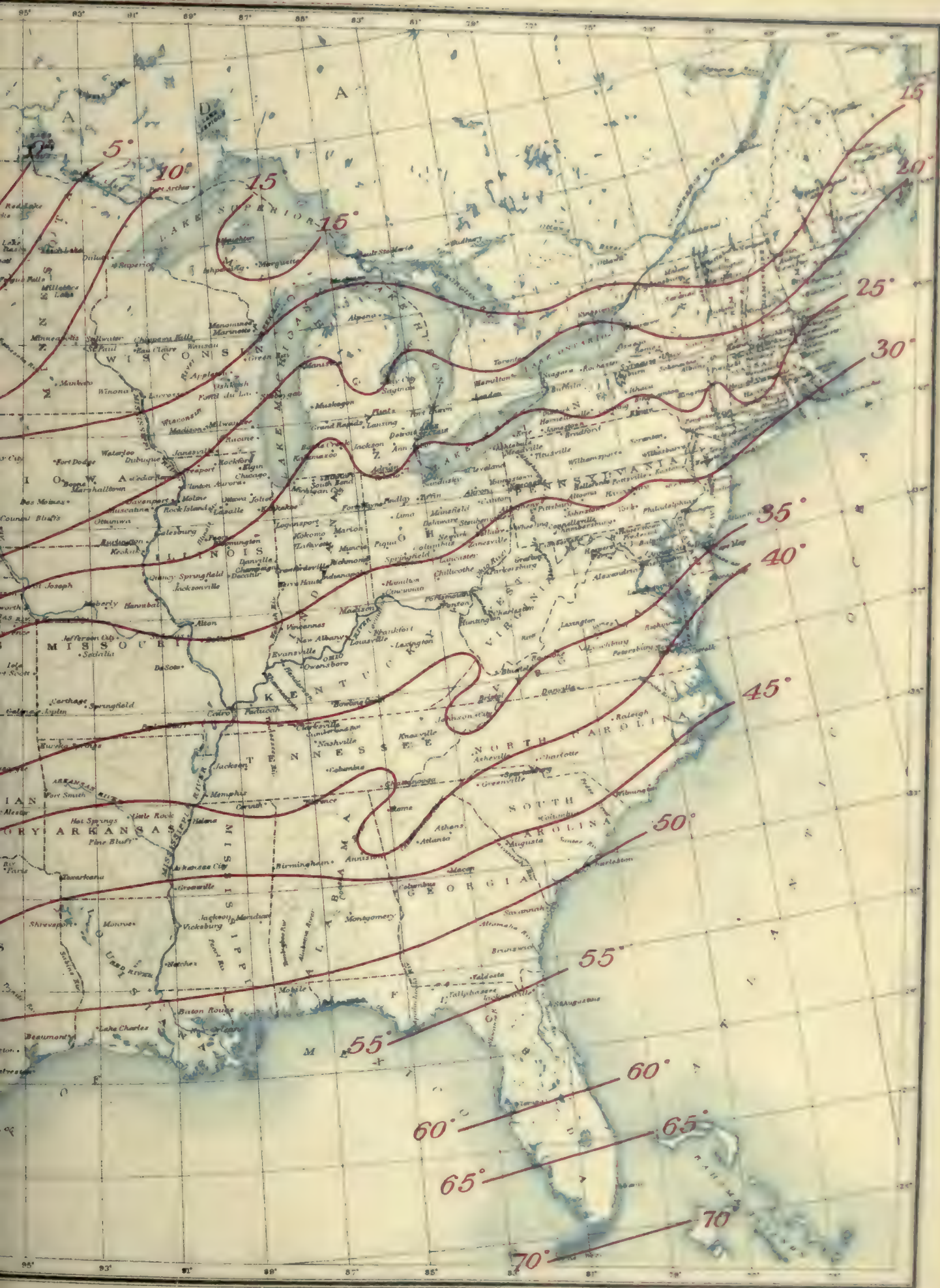








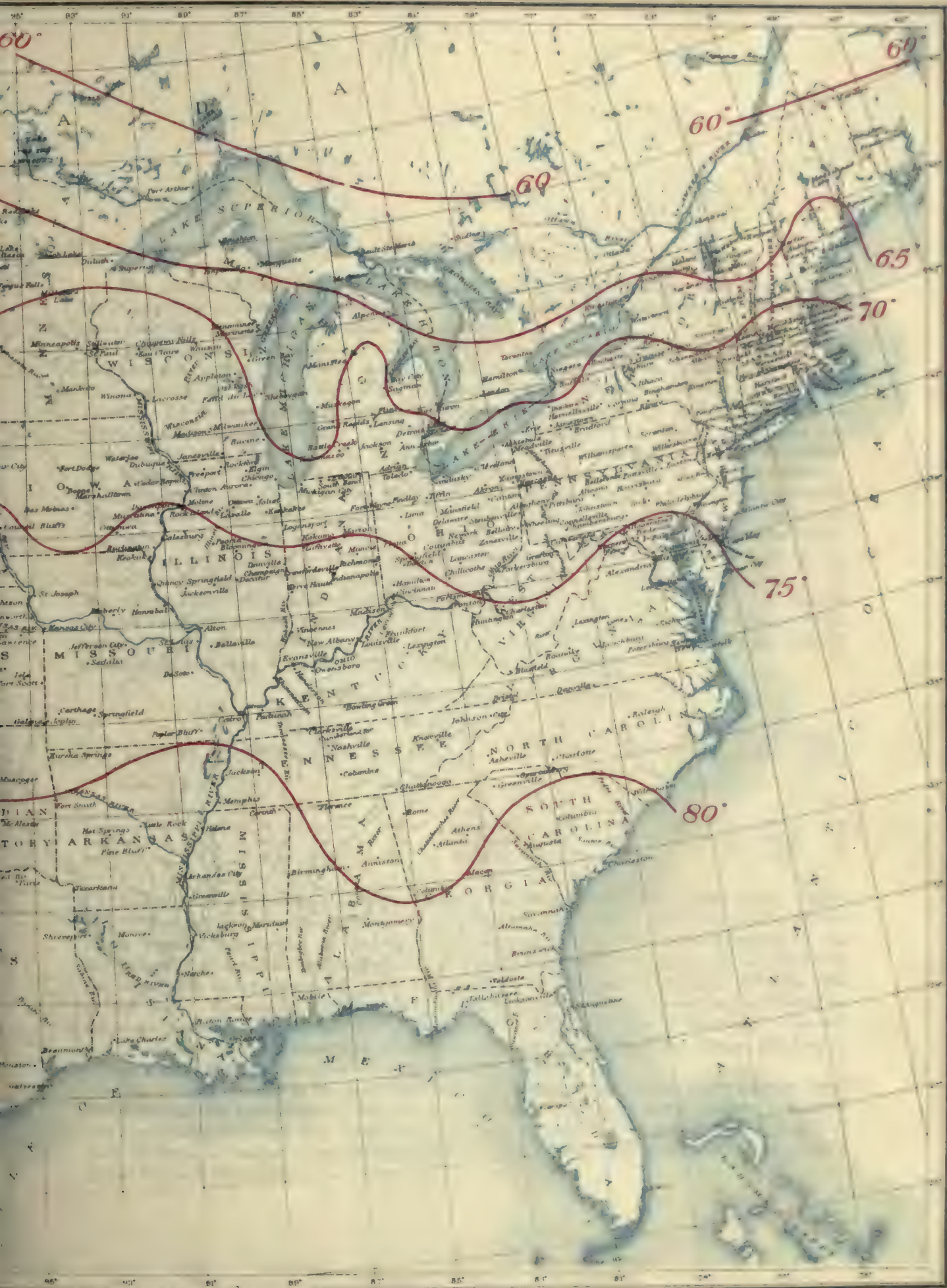
TEMPERATURES FOR JANUARY.







TEMPERATURES FOR JULY.





Temperature.

The climatic elements of greatest importance in the animal and vegetable kingdoms, so far as known at present, are temperature and precipitation, and the single element that appeals most directly to the bodily sensations is temperature.

Mean annual.—The mean annual temperature in the United States ranges from 70° in southern and central Florida and southern Texas to less than 40° in the Lake Superior region. The interior of the continent west of the Lake region is the coldest part of the country, southern Florida is the warmest, although moderate temperatures prevail along the Gulf coast in southern Texas and in southern California. The mean annual isotherms (Plate X) run in a general east and west direction from the Rocky Mountains eastward to the Atlantic, except over the southern Appalachian region, where they are displaced to the southward by the cold of elevation. On the eastern slope of the Rocky Mountains the isotherms trend in a northeast-southwest direction. Over the Rocky Mountain and Plateau regions it is impossible to draw isothermal lines with much accuracy because of the irregular and broken surface contours. On the Pacific coast the ocean influence is paramount, but it does not extend beyond the natural barrier formed by the Sierra Nevada in California and the Cascades in Washington and Oregon. In the valley of the Columbia River in Washington and Oregon high temperatures for the latitude prevail for some distance eastward of the Cascades. The annual mean temperatures in the valleys of California and Oregon differ from those on the plateau directly to the eastward by amounts ranging from 8° to 16°, as may be seen from the following table:

COMPARISON OF PLATEAU AND VALLEY TEMPERATURES.

Stations.	Latitude.	Longi- tude.	Eleva- tion.	Annual mean tempera- ture.	Stations.	Latitude.	Longi- tude	Eleva- tion.	Annual mean tempera- ture
VALLEY.	° /	° /	Feet.	° F.	PLATEAU.	° /	° /	Feet.	° F.
Sacramento, Cal.....	38 35	121 30	29	60	Carson City, Nev.....	39 9	119 45	4,674	40
Red Bluff, Cal.....	40 10	122 15	304	62	Winnemucca, Nev.....	40 57	117 45	4,322	40
Roseburg, Oreg.....	43 12	123 21	494	53	Happy Valley, Oreg.....	43 3	118 40	4,200	45

Sacramento is situated in the Great Valley of California practically at sea level. Carson City is situated on the western margin of the Plateau region almost under the shadow of the Sierra Nevada Mountains. In the second pair of stations, Red Bluff and Winnemucca, the first named is situated in the northern end of the Great Valley of California, the last named in the Humboldt Valley, about 100 miles east of the California line and probably 200 miles east of Red Bluff. Winnemucca is surrounded on all sides except the southwest and northeast by mountain peaks and ranges that rise 1,000 to 4,000 feet above the floor of the valley. The last pair of stations includes Roseburg, a town on the east slope of the Coast Range, and Happy Valley, a small town on the great Plateau of eastern Oregon.

The average distance in longitude between the several pairs of stations above given is about 275 miles and the temperature difference is nearly 12°. The temperature gradient in a north and south direction from San Diego, Cal., to Tatoosh Island, at the mouth of the Straits of Juan de Fuca, a distance on an air line of about 1,200 miles, is very much less, being about a degree for each 100 miles.

The east-west temperature gradient between the valley stations in California, Oregon, and Washington, and the summits of the mountain ranges to the eastward is not known except between Sacramento and the summit of the pass in the Sierra Nevada through which the Central Pacific Railroad crosses. The elevation of the pass is a little more than 7,000 feet, and the mean annual temperature, 42° , is 18° lower than the valley station. This gives a rate of fall equal to 1° for each 388 feet. The greatest contrast between the temperature of the mountain summits and the valley, 22° to 24° , is in late winter and spring months; the least, 10° to 12° , occurs in July and August. The great contrast in the late winter and early spring months appears to be due to the fact that insolation on the mountain top probably does not become effective in warming the atmosphere until the snow covering, which is of unusual depth, is melted.

The differences in the annual mean temperature on the east and west coasts of the United States is rather strongly marked, especially in the northern portions, as has been previously stated. The figures in the table below express the differences between the seasonal and annual mean temperatures that obtain on the two coasts. The range in annual mean temperature with latitude on the Atlantic coast is likewise much greater than on the Pacific coast. At Key West in the Gulf Stream the annual mean is 77° ; at Eastport, Me., it drops to 45.5° , more than double the range in the same distance on the Pacific coast.

ATLANTIC AND PACIFIC COAST TEMPERATURES COMPARED.

Stations.	Latitude.	Annual mean.	Winter mean.	Summer mean.	Stations.	Latitude.	Annual mean.	Winter mean.	Summer mean.
	° ' /	° F.	° F.	° F.		° ' /	° F.	° F.	° F.
Savannah, Ga.....	32 5	66	52	81	Nantucket, Mass.....	41 17	49	33	65
San Diego, Cal.....	32 43	61	55	68	Eureka, Cal.....	40 48	52	47	56
Cape May, N. J.....	38 50	54	36	72	Chatham, N. B.....	47 3	39	13	63
San Francisco, Cal.....	37 18	56	51	59	Fort Canby, Wash.....	46 17	50	42	58

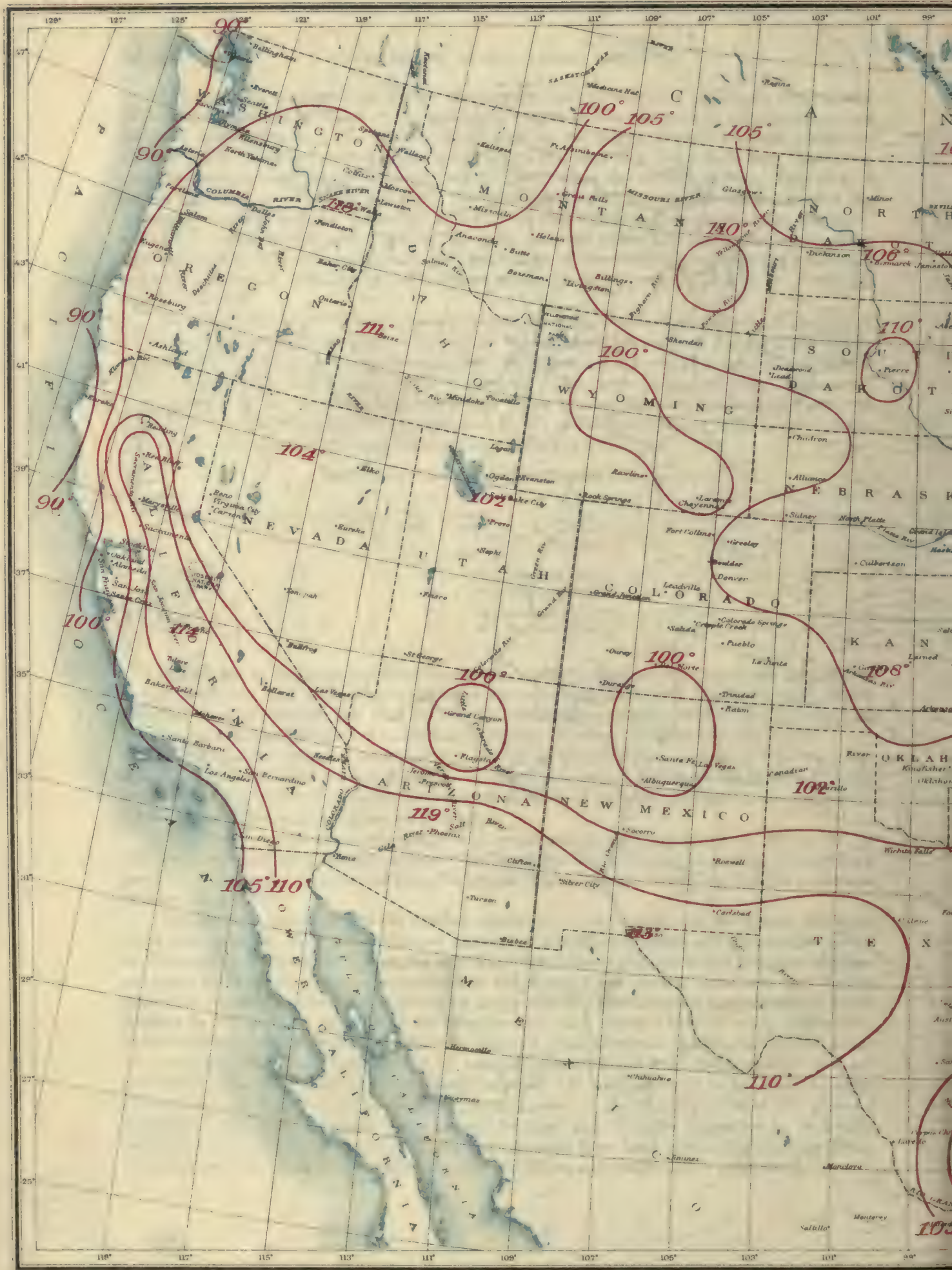
Classifying as warm those regions having an annual mean temperature of 60° and above, it will be found that such regions embrace the southern portion of North Carolina, South Carolina, Georgia, Florida, the Gulf States, the southwestern portion of New Mexico, southern Arizona, and the greater part of California, excepting of course the mountain districts.

Classifying as temperate those regions having an annual mean temperature between 50° and 60° , it will be found that such regions embrace the greater portion of the Middle Atlantic States, the Ohio Valley, Tennessee, the southern portions of Indiana and Illinois, all of Missouri, Kansas, Oklahoma, and southeastern Colorado.

Classifying as cold those regions having an annual mean temperature of 40° to 50° , it will be found that such regions embrace the northern tier of States, including the northern portions of Indiana, Illinois, all of Iowa, Nebraska, South Dakota, Wyoming, and the mountain districts of the West.

The absolute maximum and the absolute minimum.—The highest and the lowest temperatures ever recorded at Weather Bureau stations in the United States are graphically shown on Plates Nos. XIII and XIV, and the numerical values for a number of the principal stations are given in Table II. In the preparation of the charts a few records were used that do not appear in the table. There is probably no single climatic phenomenon that excites so much interest as the extreme readings of the thermometer, and about which so many misleading, if not erroneous, statements are made. In times of great extremes of temperature the desire to excel often leads to the publication of temperatures obtained from thermometers that are both faulty in construction and improperly exposed. If comparison is to be made between the extremes of temperature recorded in various parts of the country it is of the greatest importance that only standard thermometers be used and that the exposures be as nearly uniform as it is possible to secure. These requirements have been met at the stations which have furnished the data in the construction of the tables and charts above mentioned.





[illegible]



Maximum temperatures of 100° and upward have been recorded in all portions of the United States except only the higher elevations of the Appalachian and Cordilleran systems, northern New England, along the immediate coasts of both oceans north of latitude 40° , in southern and central Florida, along the immediate Gulf coast, and in portions of the Lake region. When the prevailing winds are from the land maximum temperatures of 100° may be recorded, even along the shores of the Great Lakes. Reference to Table No. II will show that from Cleveland to Buffalo along the shore of Lake Erie a maximum temperature of 100° has not been recorded, although readings of 100° and over have been recorded along the western end of the lake. Lake Michigan, whose major axis trends north and south, protects the eastern shore from abnormally high temperatures; thus at Grand Haven the highest temperature recorded in thirty-two years is but 94° , almost 10° less than have been recorded on the western shore in the same latitude.

Maximum temperatures of 110° and over are rarely observed except in the semiarid regions of the Southwest. The highest temperature ever recorded in the United States was 122° in Death Valley, California, in the summer of 1891. As the station at that place was maintained but a single summer, it is extremely doubtful whether the readings then obtained represent the absolute maximum of the desert region of southeastern California. Higher readings have been made at other places, notably at Mammoth Tank, California, in the Colorado Desert, where an absolute maximum of 130° was registered on August 17, 1885. This reading, however, is not comparable with those made by standard instruments properly screened and protected from radiated heat of surrounding objects. Maximum temperatures of 112° to 115° are not uncommon in portions of Arizona and southern California, and temperatures of 100° to 106° are not infrequent in the valley of California, also in the valley of the Columbia River in southeast Washington, and in the valley of the Snake in southwest Idaho.

The region of lowest mean temperature in the United States, viz, northern Minnesota, has not given as low readings as the high rolling country of eastern Montana, especially in the river valleys where the cold air seems to settle. The post surgeon at Fort Keogh (Miles City), Mont., recorded a minimum temperature of 65° below zero in January, 1888, and the Signal Service observer at Poplar River, Mont., recorded a minimum temperature of 63.1° below zero in January, 1885. These readings do not represent the average temperature of the air over eastern Montana at the time of observation, but rather the temperature of disconnected masses of air that, for one reason or another, have become chilled below the temperature of the surrounding regions.

The northeastern Rocky Mountain slope is subject to very great fluctuations in atmospheric pressure and these are attended by extremely rapid temperature changes. The mildness of the chinook wind is proverbial, but it is often the forerunner of a sharp fall in temperature as the area of high pressure and northerly winds sweep southeastward from Assiniboia. The northerly winds are often attended by light dry snow that is driven fiercely before the wind. When the snow ceases and the wind drops to a calm, nocturnal radiation becomes powerfully active and a further fall in temperature takes place. The fact that extremely low temperatures are seldom recorded on the Plains away from river valleys confirms the belief that they are due largely to nocturnal radiation, the effect of which is intensified by the drainage of the colder air into the valleys and the lowlands. Under these conditions great differences in temperature may exist between places not far distant.

On the morning of January 1, 1885, when a minimum temperature of -63.1° was registered in the Missouri River Valley about 50 miles west of the North Dakota State line (elevation 1,955 feet), the minimum recorded in the highlands of Fergus County (latitude 47° north, longitude 109° west; elevation 4,310 feet), about 250 miles west of the North Dakota line, was but -8° . These islands of extreme cold are analogous to the cooling that is produced in the heated atmosphere of summer by a local shower. The extreme frigidity is short lived, since the tendency is always toward an equalization in the temperature when a localized pole of heat or cold is produced. The rapidity with which the temperature in the upper Missouri Valley returns to normal conditions after a sharp fall differentiates its climate from that of

northern Minnesota and northern Wisconsin, where, owing to the more generous snow covering, and perhaps other reasons, very low temperatures may persist for several days, although the absolute minimum is never quite so low as in eastern Montana.

The absolute minimum temperature at San Diego, Cal., is 32°, and at Key West, Fla., 41°. These are the only Weather Bureau stations in the United States where a minimum temperature below freezing has not been experienced. Zero temperatures have never been recorded along the Atlantic coast south of the mouth of Chesapeake Bay, and for a distance of probably 50 to 60 miles inland. Zero temperatures have not been recorded along the Gulf coast, although a reading of 1° below was registered at Mobile in February, 1899. Zero temperatures have never been recorded along the immediate Pacific coast, nor in the Valley of California.

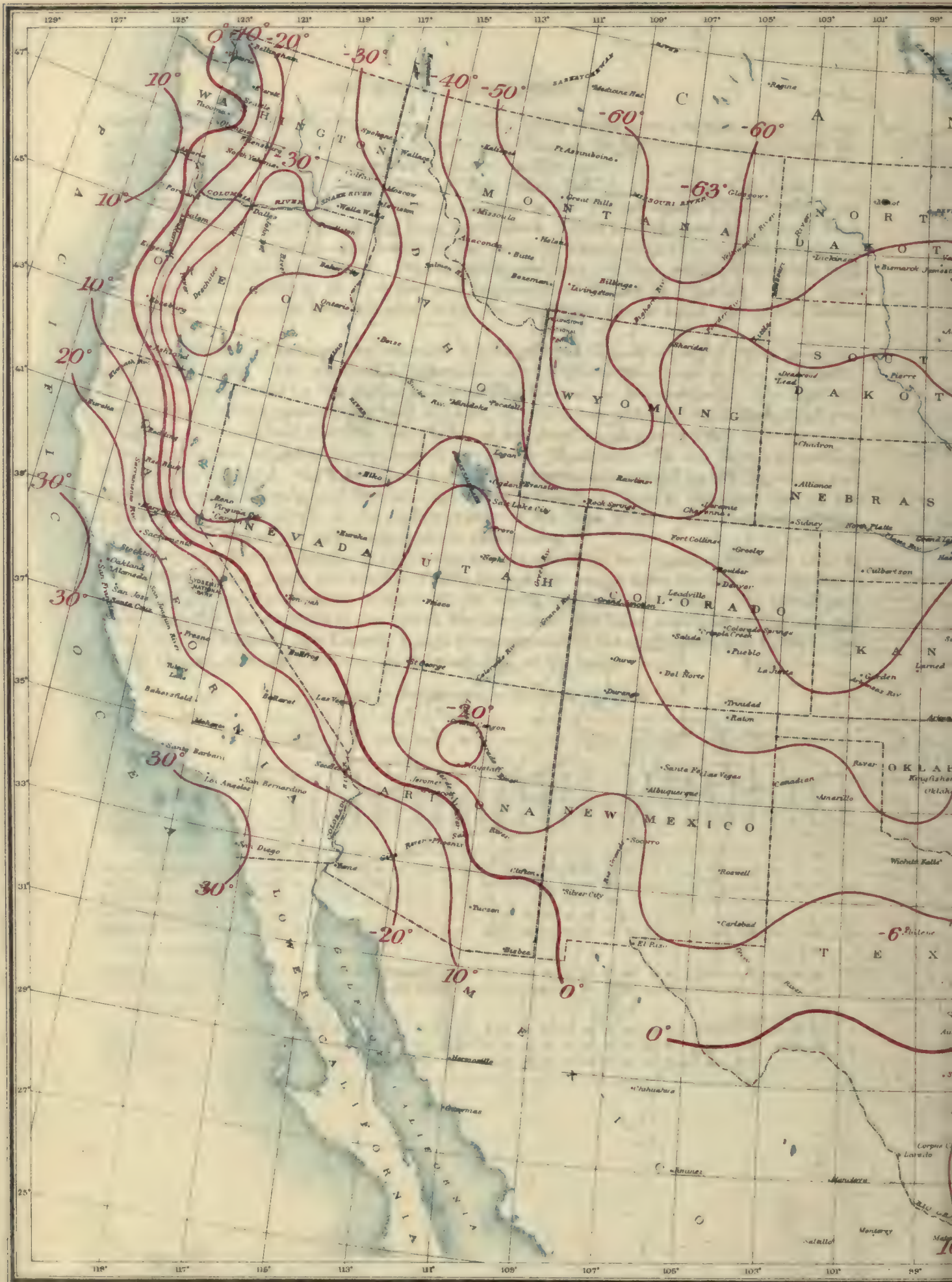
The extremes of temperature recorded at elevated points in the United States are given in the table below. The northern Appalachians, or the White Mountains as they are known locally, are represented by the station on Mount Washington, an isolated peak. The southern Appalachians are represented by four stations, of which two are mountain peaks and two villages in the mountain districts, both being at an elevation of nearly 4,000 feet above sea level, the highest inhabited points east of the Rocky Mountains. In the Rocky Mountains two stations are given, viz, Pikes Peak, a mountain station maintained by the Signal Service and the Weather Bureau, and Breckenridge, Colo., a village in Summit County, Colo., on the western slope of the divide in the narrow valley of the Blue River. The mountain ranges, both east and west of the valley, reach above timber line.

The Sierra Nevada Range in California is represented by two stations, Summit, Cal., in the mountain pass where the Central Pacific crosses the range from Nevada, and Bodie, a mining village in Mono County, latitude 38° 10' north, longitude 119° west. The last-named place is on the eastern slope of the Sierra Nevada, about 100 miles southeast of Summit and over 1,000 feet higher. The Cascade Range is represented by the single station at Government Camp, Oregon, post-office Salmon, on the west slope of the range.

EXTREMES OF TEMPERATURE IN MOUNTAIN DISTRICTS.

	Elevation.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.		Length of record.
		Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	
APPALACHIANS.																												
Mount Washington, N. H.	6,293	42	-50	43	-42	47	-49	56	-18	62	-1	71	15	72	24	74	65	11	59	-3	51	-40	43	-47	74	-50	17	
Linville, N. C.	3,800	61	-15	63	-15	75	-4	79	15	83	26	83	33	89	38	85	38	82	27	74	14	67	0	60	-7	89	-15	10
Roan Mountain, N. C.	6,313													75	45	70	45										1	
Mount Mitchell, N. C.	6,711											70	41	72	46	69	43										1	
Highlands, N. C.	3,817	63	-10	67	-19	75	-7	81	15	84	26	87	32	86	80	85	40	84	27	79	15	72	3	69	-10	87	-19	15
ROCKY MOUNTAINS.																												
Pikes Peak, Colo.	14,134	30	-37	29	-37	43	-29	39	-21	47	-8	63	2	64	18	62	15	55	6	57	-17	36	-36	30	-39	64	-39	17
Breckenridge, Colo.	9,524	72	-30	71	-37	61	-25	69	-16	73	-6	84	12	86	26	90	23	86	12	77	-2	69	-31	60	-31	90	-37	14
SIERRA NEVADA.																												
Bodie, Cal.	8,248	49	-26	63	-26	59	-21	71	-2	82	8	85	10	88	15	89	16	84	6	71	-6	67	-17	62	-25	89	-26	9
Summit, Cal.	7,017	68	-7	49	-8	55	1	67	5	73	18	92	28	95	38	98	40	83	24	72	18	64	8	52	4	98	-8	15
Salmon, Oreg.	3,580	59	-11	60	-16	66	1	74	7	81	21	87	27	94	30	95	33	95	26	87	18	79	-3	68	7	95	-16	8







MINIMUM TEMPERATURES FOR EACH YEAR DURING WHICH OBSERVATIONS WERE MADE AT FORT SNELLING AND ST. PAUL, MINN., ST. LOUIS, MO., JACKSONVILLE, FLA., AND THOMPSON AND CANTON, CONN.

[Observations of temperature at Thomson, Conn., ceased in 1896; thereafter the observations were made at Canton.]

Year.	Thompson, Conn.	Jacksonville, Fla.	St. Paul, Minn.	St. Louis, Mo.	Year.	Thompson, Conn.	Jacksonville, Fla.	St. Paul, Minn.	St. Louis, Mo.	Year.	Thompson, Conn.	Jacksonville, Fla.	St. Paul, Minn.	St. Louis, Mo.	Year.	Thompson, Conn.	Jacksonville, Fla.	St. Paul, Minn.	St. Louis, Mo.
1771.....	- 9	°	°	°	1805.....	- 4	°	°	°	1839.....	- 6	32	- 26	0	1873.....	-11	24	- 23	- 23
1772.....	-12	°	°	°	1806.....	- 2	°	°	°	1840.....	-12	32	- 37	- 6	1874.....	0	35	- 23	- 2
1773.....	- 8	°	°	°	1807.....	- 4	°	°	°	1841.....	-10	28	- 32	- 6	1875.....	- 8	28	- 32	-18
1774.....	-10	°	°	°	1808.....	-10	°	°	°	1842.....	-12	27	- 22	2	1876.....	- 5	24	- 27	- 5
1775.....	-12	°	°	°	1809.....	- 8	°	°	°	1843.....	- 8	27	- 23	- 2	1877.....	2	29	- 24	- 6
1776.....	- 9	°	°	°	1810.....	- 4	°	°	°	1844.....	-11	24	-18	10	1878.....	- 4	27	-13	- 6
1777.....	-10	°	°	°	1811.....	- 2	°	°	°	1845.....	- 2	20	-12	- 1	1879.....	- 4	25	- 20	-16
1778.....	-12	°	°	°	1812.....	- 6	°	°	°	1846.....	- 9	33	-16	2	1880.....	- 6	19	- 27	6
1779.....	- 8	°	°	°	1813.....	- 9	°	°	°	1847.....	- 4	28	- 24	- 1	1881.....	- 5	33	- 25	-12
1780.....	- 9	°	°	°	1814.....	-10	°	°	°	1848.....	-10	32	- 24	- 4	1882.....	-16	28	-18	- 6
1781.....	-12	°	°	°	1815.....	-20	°	°	°	1849.....	- 3	22	- 30	- 3	1883.....	-14	20	- 31	- 4
1782.....	-10	°	°	°	1816.....	- 8	°	°	°	1850.....	- 5	32	- 24	- 1	1884.....	°	21	- 32	- 22
1783.....	-15	°	°	°	1817.....	- 6	°	°	°	1851.....	- 9	23	- 28	- 3	1885.....	°	32	- 36	-10
1784.....	-12	°	°	°	1818.....	-10	°	°	°	1852.....	- 4	20	- 32	-12	1886.....	-17	15	- 34	- 8
1785.....	-10	°	°	°	1819.....	-12	°	°	°	1853.....	- 6	32	- 24	4	1887.....	-10	22	- 36	-10
1786.....	-12	°	°	°	1820.....	- 6	°	-30	°	1854.....	- 9	28	- 36	- 3	1888.....	-11	28	- 41	-12
1787.....	- 9	°	°	°	1821.....	- 2	°	-33	°	1855.....	-20	33	- 33	- 4	1889.....	- 8	34	- 25	0
1788.....	-12	°	°	°	1822.....	- 1	°	-29	°	1856.....	-17	24	- 32	-15	1890.....	- 4	30	- 22	4
1789.....	-10	°	°	°	1823.....	- 4	°	°	°	1857.....	-20	16	- 35	-13	1891.....	- 5	30	- 25	4
1790.....	-16	°	°	°	1824.....	-12	°	-27	°	1858.....	-19	34	- 21	0	1892.....	- 4	30	- 25	- 2
1791.....	-25	°	°	°	1825.....	- 8	°	-15	°	1859.....	-17	30	- 30	- 4	1893.....	- 9	24	- 26	- 2
1792.....	-15	°	°	°	1826.....	- 4	°	-23	°	1860.....	-16	32	- 36	- 3	1894.....	-16	14	- 25	-11
1793.....	-12	°	°	°	1827.....	- 8	°	-22	°	1861.....	-15	32	- 27	8	1895.....	-12	14	- 26	-12
1794.....	-14	°	°	°	1828.....	- 2	°	-22	°	1862.....	- 9	31	- 35	- 1	1896.....	-19	24	-18	5
1795.....	-10	°	°	°	1829.....	- 4	°	-30	°	1863.....	-10	30	- 35	2	1897.....	- 6	21	- 26	- 2
1796.....	-12	°	°	°	1830.....	-10	°	-26	°	1864.....	-17	29	- 35	-20	1898.....	-15	24	-19	3
1797.....	-15	°	°	°	1831.....	-15	°	-26	°	1865.....	-12	27	- 26	0	1899.....	-14	10	- 33	-16
1798.....	-17	°	°	°	1832.....	-12	°	-30	°	1866.....	-19	24	- 29	- 6	1900.....	- 7	18	-18	1
1799.....	-10	°	°	°	1833.....	-10	°	-20	°	1867.....	-15	32	- 27	5	1901.....	-10	20	- 25	-10
1800.....	-12	°	°	°	1834.....	- 2	°	-32	°	1868.....	- 9	20	- 35	-11	1902.....	-13	24	-18	- 1
1801.....	-10	°	°	°	1835.....	- 6	8	-30	°	1869.....	- 5	32	-17	8	1903.....	-15	26	- 24	- 6
1802.....	- 9	°	°	°	1836.....	- 2	33	- 28	- 9	1870.....	- 2	19	- 28	-14					
1803.....	- 6	°	°	°	1837.....	- 8	33	-10	5	1871.....	-13	29	- 22	- 2					
1804.....	-10	°	°	°	1838.....	-10	33	-32	- 5	1872.....	- 6	27	- 34	-20					

Absolute annual range of temperature.—In discussing the range of temperature experienced in any locality it is very important that we understand first of all what particular phase of the phenomena is meant. It may be said that the range of temperature for any point is 140° , meaning thereby that the difference between the single highest temperature and the single lowest temperature ever recorded at that point was 140° . This is known as the absolute range. In the United States the absolute range is greatest in the interior and least on the coast. In the north central districts it amounts to as much as 150° (from a maximum of 108° to a minimum of -43° at Huron, S. Dak.), although it is generally less than 150° , especially in the southern portions of the above-named district. In Atlantic coast districts the greatest absolute range is found in northern New England, 127° , and in the States bordering on the lower Lakes (from a maximum of 95° to a minimum of -32° at Northfield, Vt.). The least absolute range is 59° at Key West, Fla. (from a maximum of 100° to a minimum of 41°), and this is also the least absolute range for the whole country. In the Gulf States the absolute range is less than 100° along the coast. Back from the coast a distance of 150 miles it probably increases to 110° . The greatest absolute range in any part of the country is found on the plains over the northeast Rocky Mountain slope, viz, 163° at Havre, Mont. (from a maximum of 108° to a

minimum of -55°). Elsewhere in the Rocky Mountain and Plateau region the absolute range does not rise much above 120° ; in New Mexico and Arizona it is still less, 107° at Phoenix and 110° at Santa Fe. The absolute range in the Pacific coast States is everywhere less than 100° except in the Columbia River Valley and in the mountain regions.

The absolute ranges here given are those recorded during the period 1871–1904. It may be assumed that future observations will not materially alter the values obtained during that period.

Absolute monthly range.—In addition to the absolute annual range of temperature, it is often desired to know the absolute range for a single month. Thus at New York City the highest temperature recorded during January in thirty-two years was 67° , the lowest in the same period was -6° , giving an absolute monthly range of 73° . In July the highest temperature recorded was 99° and the lowest 50° , an absolute range of but 49° . The highest and the lowest temperatures ever recorded are given in the table mentioned above. The absolute range for each month can be had easily from the figures in that table.

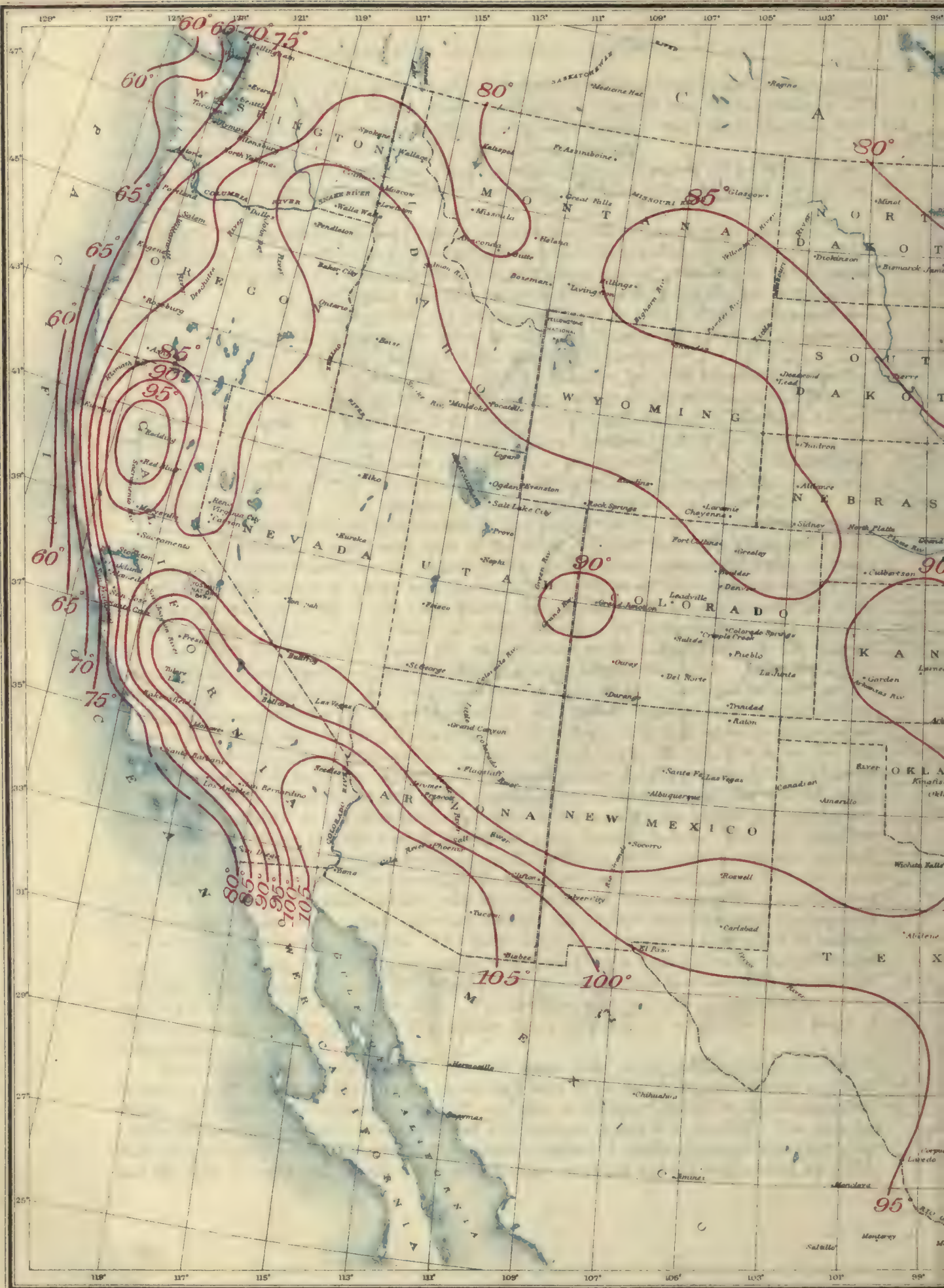
Mean annual range.—It will be noticed that the absolute range of temperature, whether for a month or a year, is always determined from single readings of the thermometer. We may now consider the range of temperature from the standpoint of variations in the mean values. The mean annual range of temperature is defined as the difference between the mean temperature of the coldest month and the mean temperature of the warmest month. At Washington, D. C., the mean temperature of the coldest month, January, is 33° ; the mean temperature of the warmest month, July, is 77° ; the mean annual range is therefore said to be 44° .

The mean annual range of temperature in the United States, like the absolute range, is greatest in the northern interior and least in the coast districts, especially along the Pacific coast, where it varies from 10° to 15° ; that is to say, the difference between the mean temperature of the coldest month in winter and the warmest month in summer does not exceed 15° . In the interior valleys of the Pacific coast States, as at Portland, Oreg., and Sacramento, Cal., the mean annual range is about twice as great (Portland, 28° ; Sacramento, 27°). In the Gulf and South Atlantic coast States the mean annual range is about 30° ; in the interior valleys, Rocky Mountain region, and the Middle Atlantic States, 40° to 50° . Over the north-eastern Rocky Mountain slope and thence eastward to Lake Superior it ranges from 55° to 65° .

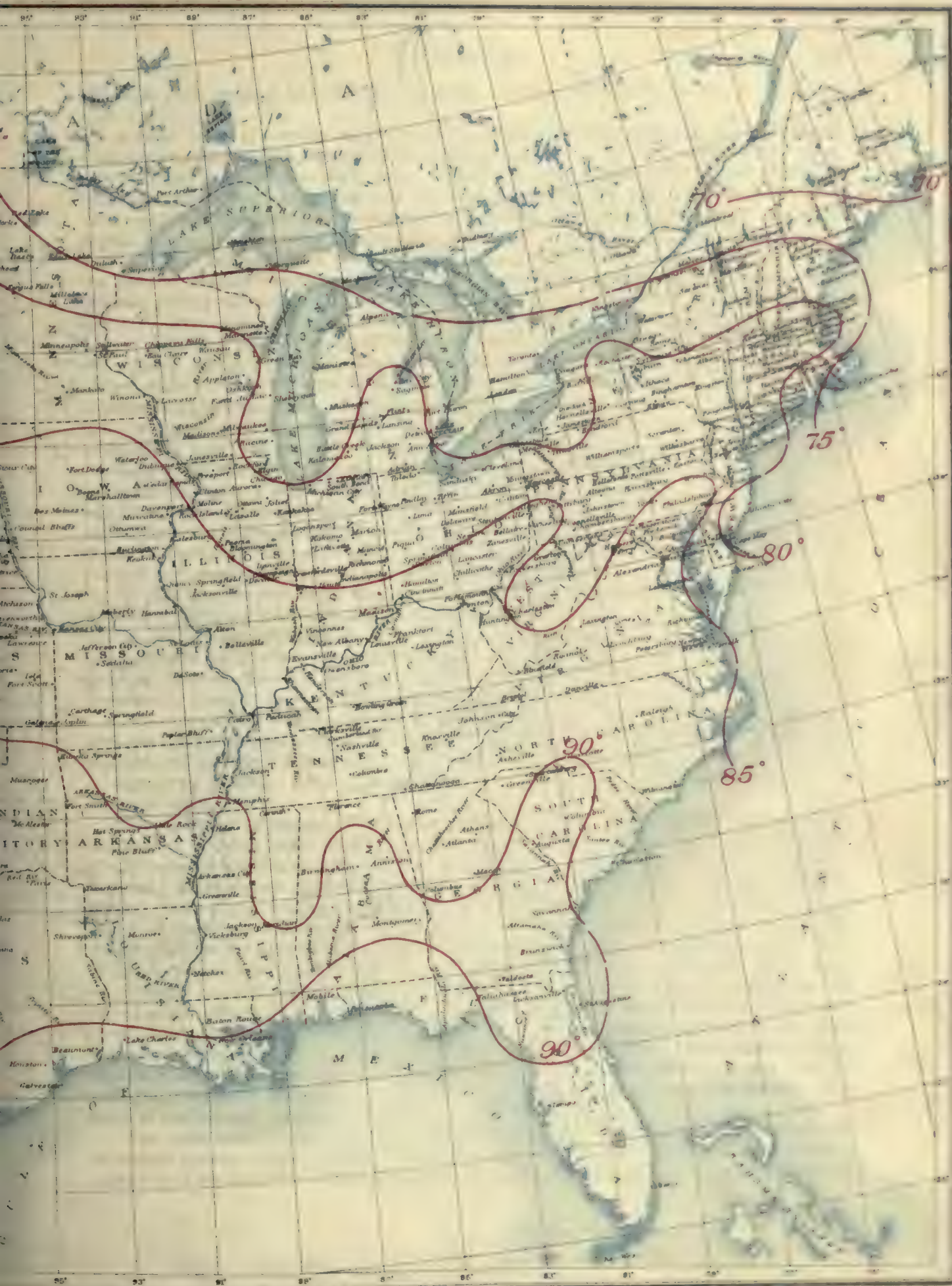
The mean annual range in temperature affords an excellent illustration of the rise in temperature that takes place in the various parts of the country from midwinter to midsummer. Thus the midsummer mean temperatures in the Gulf and South Atlantic States are but 30° warmer than those of midwinter, while in the northern interior the difference is more than twice as great. Besides the absolute and mean annual range of temperature, the diurnal range should be considered. It is a well-known fact that in fair weather the hottest part of the day occurs in the afternoon and the coldest during the early morning hours. The daily extremes of heat and cold are measured by maximum and minimum thermometers, and the readings thus made serve to establish two extremes in the daily temperature curve. The difference between the mean of the daily maxima and the mean of the daily minima for a month gives the mean daily range or the mean difference between the highest temperature of daytime and the lowest temperature of nighttime. The daily march of temperature is retarded by various causes. The sun may be obscured by clouds, thus preventing a high afternoon maximum and reducing the daily range. Clouds also retard radiation at night, and as a result the temperature does not sink so low as under clear skies. The alternate warming and cooling incident to the movement of cyclonic areas across the country has a tendency to reduce the daily range of temperature.

Mean daily range.—In the United States the mean daily range of temperature in summer is greatest (30° to 35°) in the Plateau region and least (8° to 12°) along the Pacific and Gulf coasts. In winter it is uniformly 3° to 5° less than in summer, except in the Southeastern States, where the difference between winter and summer is not well marked. The greatest daily range occurs, as above stated, in the semiarid regions of the Southwest, where clear skies and the lack of vegetation greatly facilitate excessive warming by day and cooling by night.





TEMPERATURES FOR JULY.





The mean daily range of temperature is generally less than 20° at all times east of the Mississippi Valley.

Absolute range of monthly means.—Thus far mention has been made of the mean annual temperature, the absolute maximum, the absolute minimum, the absolute range, the mean annual range, and the mean daily range. There are other phases of the subject that need attention. One should know not only the mean conditions but also what departure from those conditions have been experienced and how often marked abnormalities occur. In Washington, for example, the mean temperature for January is 33° , but in January, 1890, the mean was 44° and in January, 1893, it was but 25° , a range of 19° in thirty-four years. In summer the monthly departures are less. Thus at Washington the mean July temperature is 77° , the warmest July in thirty-four years was 81° , the coolest 72° , a range of but 9° as against 19° in January. The general climatic tables for the several States and Territories contain data of the highest and lowest monthly means for each station. Two charts have been constructed showing the absolute range of the mean temperatures for January and July in different parts of the United States (Pls. XVII and XVIII). An examination of the January chart (Pl. XVII) shows a large central region, including practically the whole of the Missouri and the middle and upper portions of the Mississippi Valley, in which the extreme range of the monthly mean temperature is 25° and over. In other words, the mean temperature of January in this region oscillates above and below the mean, through a range of 25° to 30° . At St. Paul, Minn., for example, the January mean temperature is 12° , the highest mean for any January was 26° , and the lowest -1° , an oscillation of 14° above the mean and 13° below it. The positive departures in January are generally greater than the negative except in the northern and middle Rocky Mountain and Plateau regions, where the reverse appears to be true. In summer the positive and negative departures are much more nearly equal.

In Atlantic and Gulf coast districts the oscillation is generally from 16° to 21° . In the Southwest and along the Pacific coast it is much less— 8° to 16° .

In summer the amplitude of the oscillations is about half what it is in winter, except on the California coast, where it is practically the same winter and summer. The region of the greatest departure from the average conditions is in the middle Mississippi Valley, where a departure of about 7° above or below the normal may be expected.

The cause of the abnormalities of temperature above referred to is intimately associated with the control of movements of cyclones and anticyclones. The region in which the abnormalities are greatest coincide very closely with the average track of anticyclones, which, it may be remembered, cause a decided fall in temperature as they advance eastward or southeastward.

Variability of the monthly means.—The monthly mean temperatures for upward of 600 stations will be found in the general climatic tables for each State and Territory which appear in a subsequent portion of this volume. There will also be found in connection therewith a statement of the highest and lowest monthly mean values recorded during the period of observation. Since the monthly mean temperature of itself does not always give an adequate idea of the temperature conditions at a given place, it becomes necessary to examine the monthly departures from the general mean. For example, the January mean temperature at St. Paul, Minn., for seventy-five years is 12° , yet sixty-five out of the seventy-five years had a mean temperature that differed more than 1° F. from that figure. In 40 per cent of the years the actual means differed from the general means by amounts ranging from 2° to 6° ; in 28 per cent, by 6° to 10° ; and in 13 per cent, by 10° and over. The coldest January was that of 1857, with a mean temperature of -2.3° ; the warmest, 1846, with a mean of 28.8° . These figures indicate that the mean temperature of any future January will doubtless fall between -2° and $+28^{\circ}$ F., with the chances as 4 to 1 that it will differ more than 2 degrees from the normal. The mean of the January departures from the normal for St. Paul is 5.6° .

The mean monthly variability of temperature has been computed for a few stations only in various portions of the country. The results are given in the table below, from which it appears that the monthly variability is greater in winter than in summer in all portions of the

country; that, considered by geographic districts, it is least on the Pacific coast and greatest in the northern interior. In the two columns on the extreme right of the table will be found the percentage of years, with positive and negative departures, respectively. It will be noticed that on the Pacific coast and the interior negative departures appear to predominate, while in the Atlantic coast districts the reverse appears to be true. This results from the fact that the departures are not symmetrically distributed on both sides of the mean. In Atlantic coast districts, for example, the negative departures are greater than the positive. In winter the positive departures were greatest at 12 stations and the negative at 6.

MEAN MONTHLY VARIABILITY OF TEMPERATURE

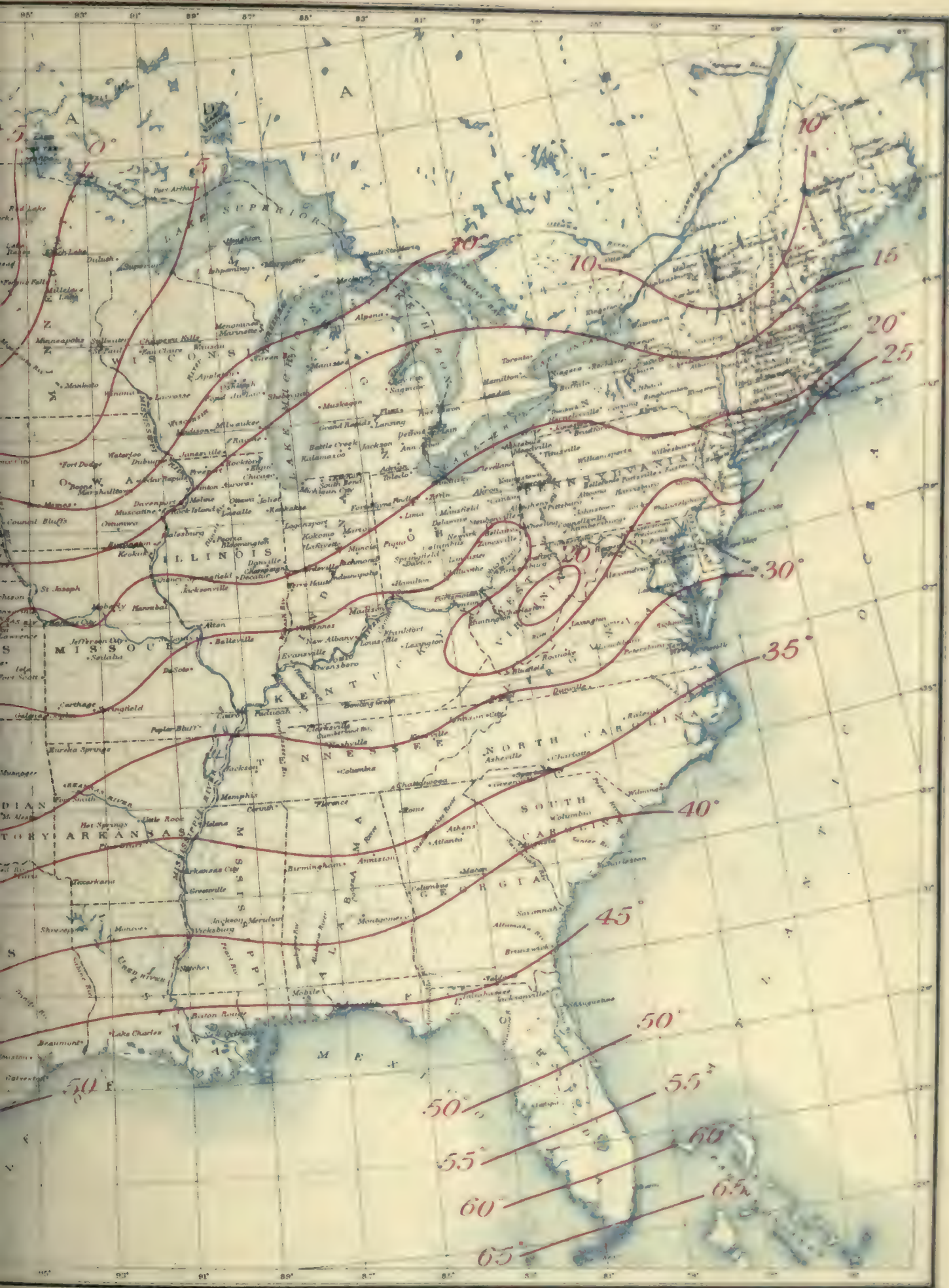
	Mean variability.			Fluctuations about the mean \pm .									
	Jan.	July.	Year.	January.				July.				Years.	
				Less than 2°.	From—			Less than 2°.	From—			Above.	Below.
					2° to 6°.	6° to 10°.	10°+.		2° to 6°.	6° to 10°.	10°+.		
° F.	° F.	° F.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	
Pacific coast:													
Portland, Oreg.....	2.7	1.5	0.8	50	41	■	0	75	25	0	0	46	54
Sacramento, Cal.....	2.1	1.4	0.8	46	54	0	■	81	19	0	0	52	48
San Diego, Cal.....	1.8	1.1	0.7	62	38	■	■	91	9	0	0	44	56
Rocky Mountain and Plateau region:													
Havre, Mont.....	6.8	1.8	1.5	22	30	22	26	70	26	4	0	48	52
Salt Lake City, Utah.....	2.8	1.6	1.0	51	39	10	0	70	30	0	0	46	54
Denver, Colo.....	3.2	1.9	1.0	42	42	16	2	60	40	0	0	47	53
Santa Fe, N. Mex.....	2.7	1.3	1.1	52	42	6	0	87	13	0	0	52	48
Western Plains and Texas:													
Bismarck, N. Dak.....	7.1	1.9	1.6	21	17	34	28	66	34	0	0	46	54
Dodge City, Kans.....	4.8	1.7	1.1	28	41	24	7	69	31	0	0	48	52
San Antonio, Tex.....	3.2	1.3	0.9	42	42	16	■	92	8	0	0	52	48
Mississippi Valley:													
St. Paul, Minn.....	5.6	2.3	1.6	19	40	28	13	55	39	5	1	42	58
St. Louis, Mo.....	4.8	1.9	1.1	24	51	21	■	63	35	2	0	49	51
New Orleans, La.....	3.3	1.1	0.8	45	37	15	3	82	18	0	0	48	52
Lake region:													
Detroit, Mich.....	4.1	1.5	1.1	33	43	21	3	73	27	0	0	56	44
South Atlantic States:													
Atlanta, Ga.....	3.3	1.2	0.9	40	■	16	4	72	28	0	0	67	33
Jacksonville, Fla.....	2.9	0.9	0.8	38	53	9	0	94	6	0	0	58	42
Middle Atlantic States:													
Washington, D. C.....	3.6	1.8	0.8	42	42	13	3	64	36	0	0	57	43
New England:													
Boston, Mass.....	2.9	1.5	1.0	49	36	15	0	67	33	0	0	53	47

Mean daily variability.—The mean daily variability of temperature is obtained by taking the differences between the mean temperature of successive days in the same month, regardless of whether the temperature rises or falls, and computing the means for the month. The mean daily variability is therefore the mean of the successive daily differences, and is accordingly a measure of the accidental changes as opposed to the periodic changes. By the accidental changes is meant the rise in temperature due to the passage of a cyclone, or the fall due to an anticyclone, and all other changes that result from the prevalence of abnormally hot or abnormally cold winds. The average daily variability for 18 selected stations is given in the table below.



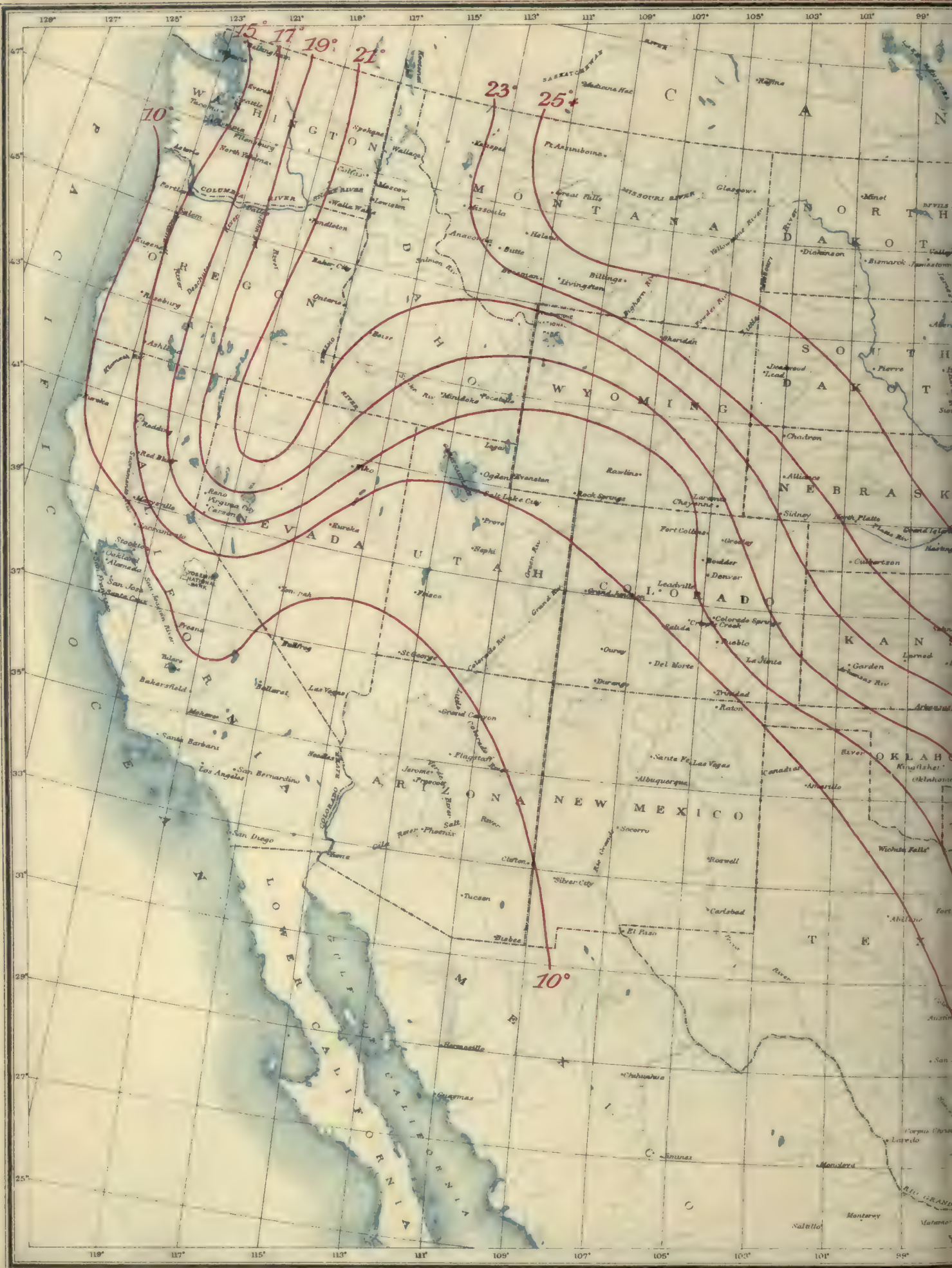


This is a historical map of the United States, specifically for the month of January. The map displays isotherms, which are lines representing areas of equal temperature. The isotherms are labeled with values in degrees Fahrenheit, ranging from 10 to 65. The map includes labels for major cities, states, and geographical features. The isotherms show a clear trend of increasing temperature from north to south, with the 10°F line in the northernmost part of the map and the 65°F line in the southernmost part. The map is oriented with North at the top.

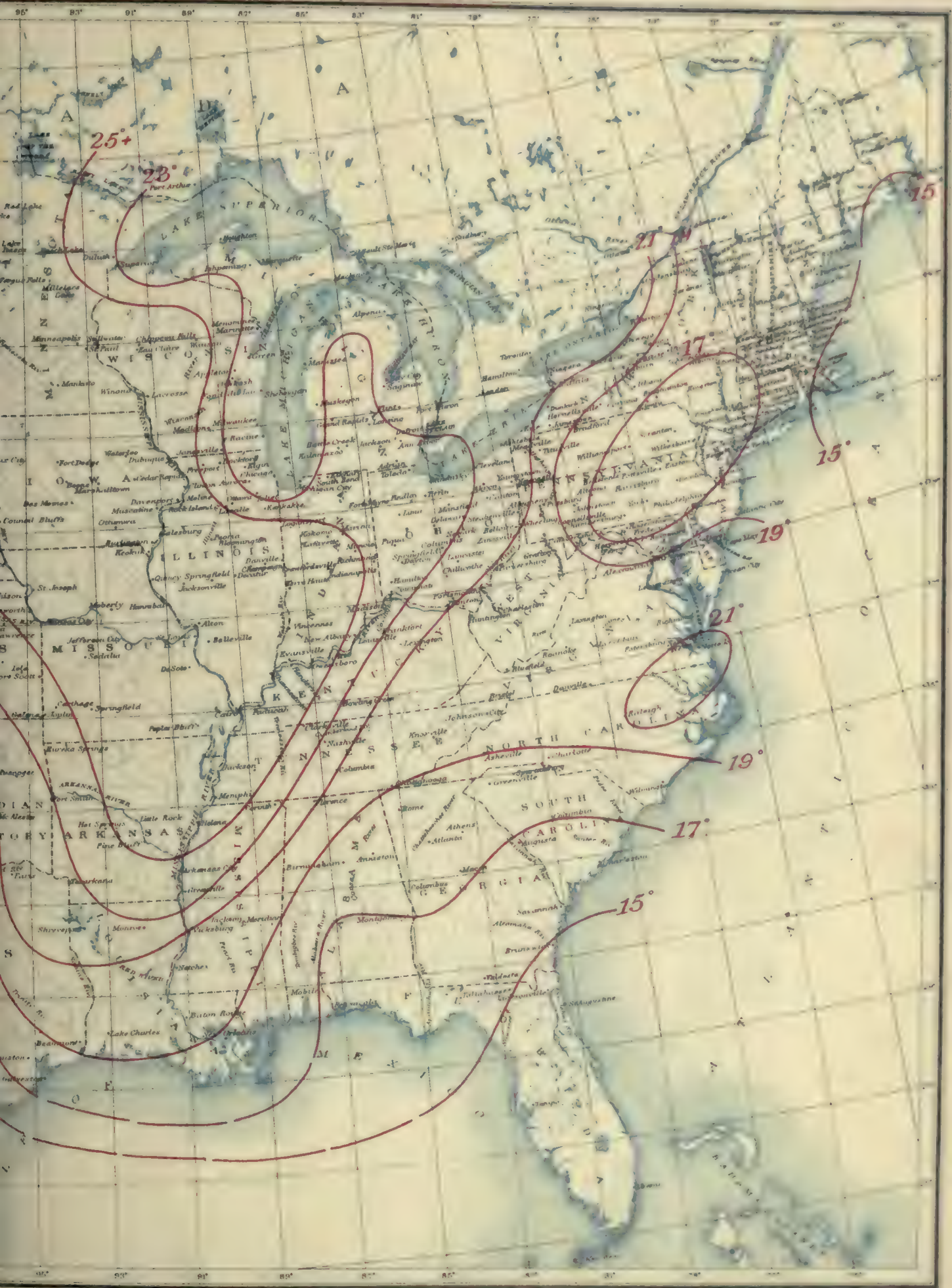








MEAN TEMPERATURE, JANUARY.

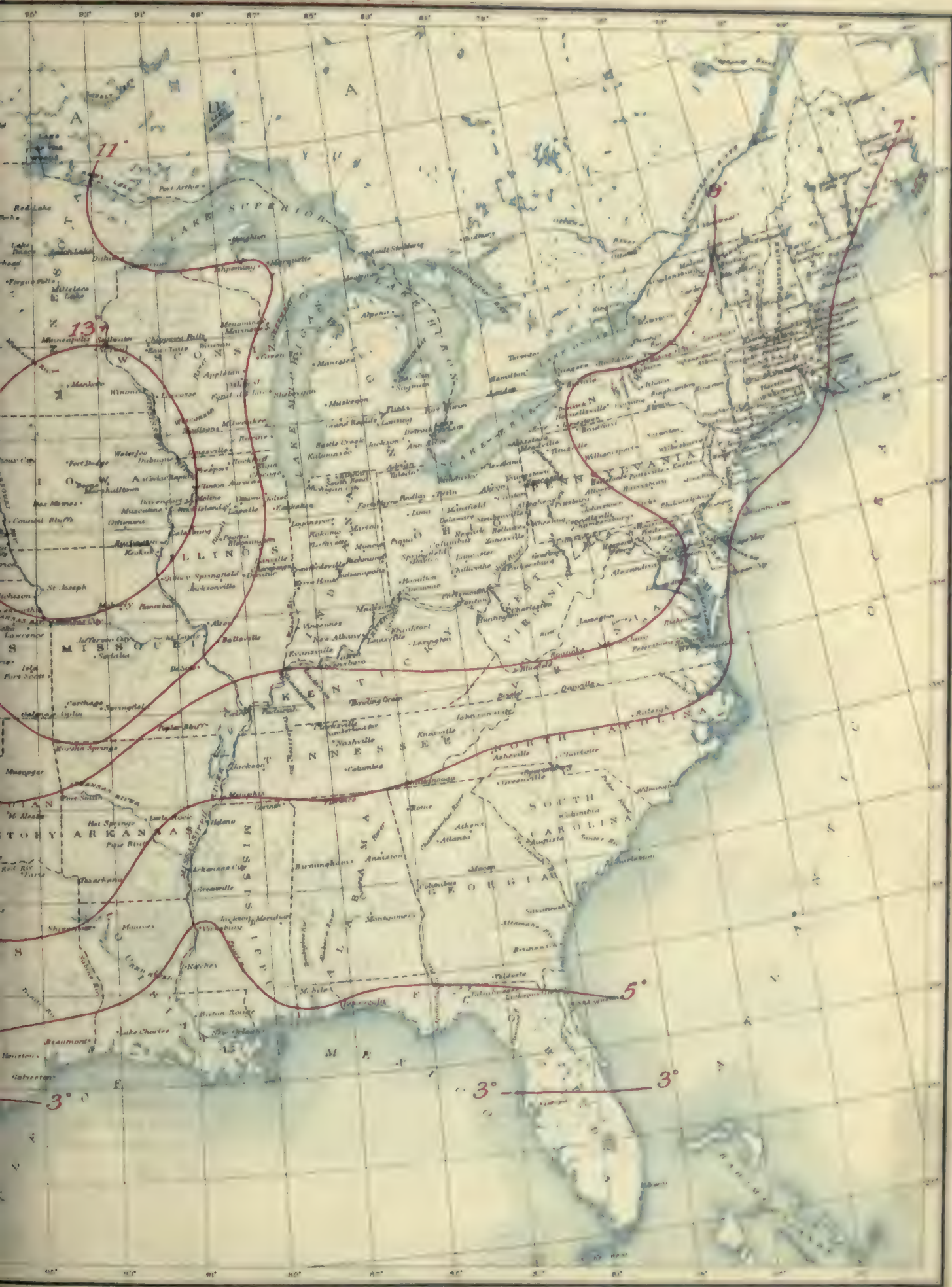








MEAN TEMPERATURE, JULY.





AVERAGE DAILY VARIABILITY OF TEMPERATURE.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Pacific coast:													
Portland, Oreg.....	3.7	3.0	3.0	3.1	3.6	3.2	2.9	2.9	3.2	3.0	3.3	3.3	3.2
Sacramento, Cal.....	2.3	2.4	2.3	2.7	3.0	2.9	2.9	2.9	2.9	2.5	2.2	2.7	2.6
San Diego, Cal.....	2.3	2.3	1.8	1.8	1.4	1.3	1.1	1.2	1.5	1.9	2.2	2.3	1.8
Rocky Mountain and Plateau regions:													
Havre, Mont.....	9.3	8.2	6.5	5.0	4.7	3.8	4.2	4.0	4.6	5.3	7.5	8.0	5.9
Salt Lake City, Utah.....	4.2	4.2	4.1	4.9	4.7	4.3	3.3	2.9	4.2	4.1	3.9	3.8	4.0
Denver, Colo.....	8.1	6.6	6.7	5.7	5.2	4.1	3.5	3.2	4.6	5.3	6.3	6.7	5.5
Santa Fe, N. Mex.....	4.2	4.1	4.2	4.7	3.9	3.2	2.2	2.1	2.7	3.3	3.8	4.0	3.5
Western Plains and Texas:													
Bismarck, N. Dak.....	9.0	8.4	7.1	5.6	4.9	4.4	4.4	5.0	5.7	5.7	6.9	7.7	6.2
Dodge City, Kans.....	7.3	7.3	7.2	6.3	5.3	3.9	3.5	3.4	4.8	5.5	6.3	6.4	5.6
San Antonio, Tex.....	6.2	6.4	5.8	3.7	2.8	1.9	1.4	1.5	2.2	3.4	5.3	5.5	3.8
Mississippi Valley:													
St. Paul, Minn.....	8.2	8.5	6.0	5.1	4.4	3.6	3.5	3.7	4.6	5.2	6.3	7.0	5.5
St. Louis, Mo.....	8.6	8.2	7.0	5.9	4.6	3.4	3.1	3.0	4.2	5.0	6.5	7.0	5.5
New Orleans, La.....	6.0	5.0	4.5	2.9	2.0	1.7	1.6	1.6	1.7	2.8	4.6	5.6	3.3
Lake region:													
Detroit, Mich.....	6.7	7.1	6.1	5.3	5.0	3.8	3.8	3.7	4.6	5.1	5.4	5.8	5.2
South Atlantic States:													
Atlanta, Ga.....	6.0	6.0	5.7	4.4	3.5	2.6	2.2	2.1	2.6	3.7	5.1	5.3	4.1
Jacksonville, Fla.....	5.7	5.2	5.0	3.3	2.5	2.0	1.8	1.8	1.9	3.0	4.7	5.2	3.5
Middle Atlantic States:													
Washington, D. C.....	5.9	6.6	5.9	5.2	4.5	3.7	3.2	3.1	3.9	4.7	5.4	5.5	4.8
New England:													
Boston, Mass.....	7.3	7.3	5.3	5.5	5.5	5.0	4.0	3.9	4.9	5.3	6.2	7.4	5.6

AVERAGE DAILY VARIABILITY OF TEMPERATURE, IN PERCENTAGES, WASHINGTON, D. C. (1883-1903).

[Illustrating the frequency of changes in mean daily temperature of 1°-4°, 5°-8°, etc.]

Average daily change.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
0°.....	7	7	6	8	9	10	14	12	10	11	7	8
1° to 4°.....	43	39	40	45	51	61	60	51	56	51	48	44
5° to 8°.....	27	28	26	20	29	21	21	24	24	25	26	26
9° to 12°.....	14	14	17	11	10	7	4	3	7	11	11	13
13° to 16°.....	5	7	7	5	1	1	0	1	3	3	4	5
17+.....	4	5	3	2	1	0	0	0	0	0	3	3

FROST.

The average date of first and last killing frost, respectively, east of the Rocky Mountains, is shown by Plates XIX and XX. It is not deemed advisable to attempt to draw lines of equal frost dates over the Mountain and Plateau region westward of the one hundred and third meridian, but the average dates for Weather Bureau stations in that region have been entered on the charts.

In autumn killing frosts occur first in northern Minnesota and Dakota, in the region of greatest cold in winter. The advance of the frost line southward is irregular, there being a considerable area in the central valleys shown on the chart by the interval between October 15 and November 1, over which the average date falls in the latter part of October. Southward of Tennessee and Arkansas the average date of killing frost is deferred until November, although in some years killing frost may occur in the latter part of October. Killing frosts in Tennessee rarely occur as early as October 1.

Killing frost may occur in northern Minnesota and Dakota as early as August 25, and light frost at an earlier date. Light frost during the latter part of August is not an unusual occurrence over Michigan, Wisconsin, Minnesota, the Dakotas, and Montana.

The time that generally elapses between the date of killing frost on the average of all years and the date of the earliest killing frost in any individual year varies greatly with locality. In some regions, as in Nebraska and Iowa, it is about thirty days. Farther north it is less, probably fifteen days; and it is also less in the South, probably twenty days.

Killing frosts occur in spring on the average as late as May 15 in the upper peninsula of Michigan, the northern portions of Minnesota and Wisconsin, and in North Dakota. Occasionally a killing frost occurs in the first half of June. Instances are known of killing frosts in western New York, western Pennsylvania, and northern Ohio as late as June 11. What are known in western Pennsylvania as the great June frosts occurred on June 4 and 11, 1859. These frosts killed nearly all vegetation, even to the leaves of the trees.

The occurrence of frost is largely governed by local topographical features, and should be studied more from a local than a general standpoint. There are undoubtedly limited areas in all States where frost does not occur with the same frequency or severity as in other localities. Frost is more likely to occur in valleys than on the slopes of adjacent hills, since there is a strong tendency for the air as it cools by terrestrial radiation to flow down the slopes into the valley by force of gravity alone. The depth of the stratum of cold air which rests on the floor of the valley is often plainly outlined by the frost line along the adjacent hillsides. The same phenomenon, viz, the drainage of cold air into the valleys and over lowlands, is noted in cold winter nights. Horticulturists, therefore, are careful to avoid valleys in selecting sites for orchards, since the probability of both frost and severe freezes is decidedly greater than on the hillsides and the higher lands.

DECREASE IN TEMPERATURE WITH ALTITUDE.

Temperature inversions.—The observed decrease in temperature with elevation is, on the average, about 1 degree Fahrenheit for 330 feet; it is more rapid in summer than in winter and in general varies with the time of day and the state of the sky, whether clear or cloudy. In all seasons there are frequent exceptions to the general law of cooling with increase in altitude. The simplest case is that which occurs in calm clear weather, when the air in valleys becomes colder than that of the slopes and summits of the inclosing hills or mountains. The cooling in the valleys is due partly to nocturnal radiation and partly to the drainage of colder air from the sides into the bottom or floor of the valley. A somewhat similar phenomenon is observed in the winter season in the mountain regions of the West, whenever a strong anticyclone moves southeastward along the eastern slope of the Rocky Mountains at a time when the southern portion of the Great Basin is occupied by a cyclone. Apparently the higher elevations of Colorado, Wyoming, and Montana prevent the flow of the cold surface air of the anticyclone southwestward across the mountains into the Great Basin. The cold of the anticyclone is generally confined to a relatively thin stratum of air, as may be seen by an examination of the table below. In this table are given daily mean temperatures for a number of stations of different elevations on both sides of the Continental Divide for the period February 1 to 14, 1905.

It will be seen that the daily mean temperatures over the plains directly to the eastward of the main range of the Rocky Mountains were on a few dates, notably the 2d, 3d, and 4th, as much as 20° to 30° lower than at mountain stations 3,000 and 4,000 feet higher.

It is an interesting fact that the mean temperature for the entire fourteen days at Halls Gulch,^a elevation 12,000 feet, was only half a degree lower than at Denver, more than a mile nearer sea level.

The temperature on the western slope of the Continental Divide during the period in question was generally higher than on the eastern slope until about the 11th, when a period of low temperatures set in on both sides of the range at all altitudes. It should be noted, however, that the fall in temperatures on the 11th began first on the plains of northeastern Colorado and gradually overspread the whole State. There was also a fall in temperature on

^a Halls Gulch, according to District Forecaster Brandenburg, is about a mile east of the Continental Divide, which at that point has an elevation of 12,600 feet.





KILLING FROST IN AUTUMN.







ELING FROST IN SPRING.





the 9th on the western slope, and also at elevated stations on the eastern slope, but not at lower levels.

TEMPERATURE INVERSIONS IN ROCKY MOUNTAINS, FEBRUARY 1 TO 14, 1905.

Elevations and stations.	Elevation.	February, 1905.													
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
EAST OF THE DIVIDE.															
4,500 to 6,500 feet:	Feet.														
Fort Collins.....	4,994	4	4	2	9	18	16	17	16	20	14	4	-12	-2	23
Boulder.....	5,400	6	3	4	13	18	16	20	26	24	20	0	-8	13	32
Denver.....	5,272	5	4	6	18	22	15	18	24	22	11	-10	-10	12	26
Canyon City.....	5,363	14	7	2	11	20	18	12	21	21	20	8	-14	8	20
Colorado Springs.....	6,098	8	-3	0	14	27	13	15	24	18	16	-2	-12	2	10
Means.....		7	2	3	13	21	16	16	22	21	16	-2	-11	7	24
6,500 to 8,500 feet:															
Cheeseman.....	6,782	10	22	24	32	27	26	16	19	15	21	6	-10	10	20
Salida.....	7,050	29	38	40	38	34	29	28	26	16	20	13	-3	10	20
Idaho Springs.....	7,534	15	27	31	31	18	24	25	16	18	10	-8	4	4	22
Means.....		18	29	32	34	26	26	23	20	16	17	4	-3	8	21
8,500 to 12,000 feet:															
Longs Peak.....	8,600	11	30	29	26	16	18	17	10	6	10	-6	-14	-4	16
Frances.....	9,300	14	29	30	26	24	24	26	12	10	17	-3	-8	-4	15
Lake Morain.....	10,268	28	28	24	28	20	22	18	10	3	12	11	-8	6	14
Halls Gulch.....	12,000	20	20	22	20	18	18	16	16	2	11	6	-6	-6	4
Means.....		18	27	26	25	20	20	19	12	5	11	2	-9	-2	12
WEST OF THE DIVIDE.															
4,500 to 6,500 feet:															
Fruita.....	4,510	29	30	36	38	38	40	34	29	20	29	26	5	-11	-4
Grand Valley.....	5,105	32	36	37	35	39	36	32	30	20	27	26	8	-4	9
Glenwood Springs.....	5,866	33	34	35	34	31	22	18	22	13	22	21	6	-8	5
Means.....		31	33	36	36	36	33	28	27	18	26	24	6	-8	3
6,500 to 8,500 feet:															
Pagoda.....	6,500	26	31	34	22	28	25	14	15	13	6	16	-16	-4	10
8,500 to 12,000 feet:															
Breckenridge.....	9,524	28	30	28	20	22	18	18	12	2	11	12	-3	-8	11
Silverton.....	9,224	27	28	28	26	22	22	21	14	4	20	20	4	4	10
White Pine.....	10,000	26	26	27	25	20	18	16	12	-2	16				
Means.....		27	28	28	24	21	19	18	13	1	16	16	0	-2	10

COLD WAVES.

An isolated thunderstorm in the summer season temporarily cools the atmosphere in its immediate neighborhood; general thunderstorms and showers cool the air over a relatively greater area and the cooling is more lasting than in the case of the isolated storm, that is to say, it may endure for twenty-four hours, while the effect of the isolated storm vanishes in a few hours.

The same genetic conditions which produce the cooling of a summer shower, when strongly accentuated produce the cold wave of winter. The warming up in front of a cyclone and the cooling in the rear have been frequently referred to in the preceding pages. The fall in temperature technically known as a cold wave is merely an intensified case of the cooling hereinbefore described in connection with the movement of cyclones and anticyclones. The fall in temperature to justify a cold wave must be at least 20° in twenty-four hours, except along the Gulf coast where a fall of but 16° or more constitutes a cold wave, provided in both cases a certain minimum temperature is reached. Along the Gulf coast and in Florida the minimum

temperature is 32° or lower. In north central districts the minimum is zero or lower in December, January, and February, and 10° in November and March.

The average warming in winter in front of a cyclone is not far from 10°; in exceptional cases the rise in temperature may be as much as 20° to 30° above the average for the time and place. If then the cyclone under whose influence the temperature rose be followed by a strong anticyclone, the fall in temperature due to the indraught of cold northwest winds will be sufficient to constitute a cold wave.

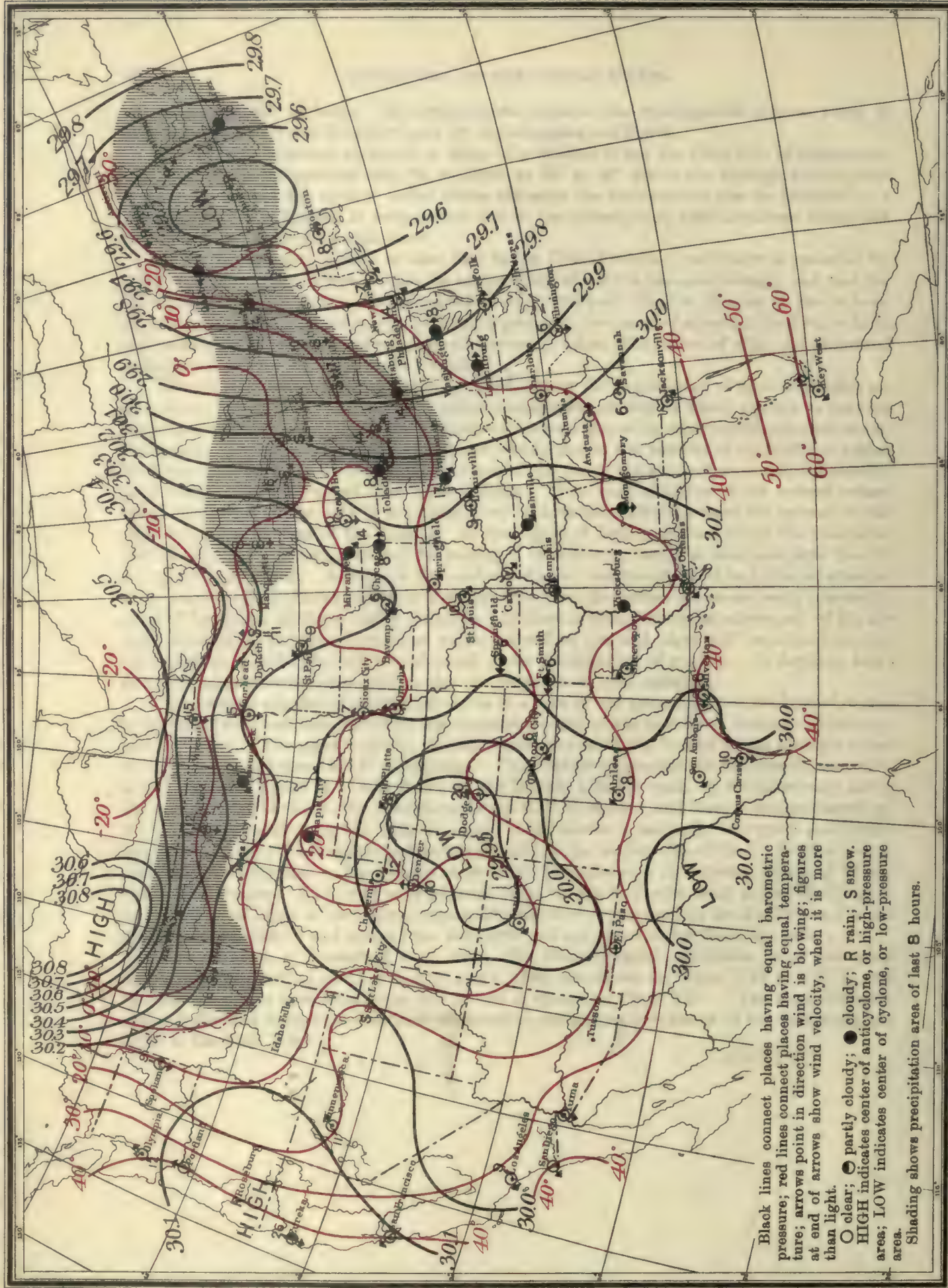
From the foregoing it may be seen that in the United States a cold wave is preceded by warm southerly winds, which elevate the temperature above the seasonal average, and that the fall in temperature is due to the prevalence of cold northwest winds in the rear of the cyclone. The above statement is incomplete, so far as it relates to the cause of abnormal heating in front and cooling in the rear of cyclones, since no account is taken of the effect of solar and terrestrial radiation, the vapor contents of the air, etc.

The air is heated in front of a cyclone, not alone by the importation of relatively warm air from lower latitudes but as a result of other atmospheric conditions which operate to prevent loss of heat by radiation at night and to conserve the heat gained by day through solar radiation. Conversely, the cold of the anticyclone is not wholly due to the transfer of cold air from higher latitudes, since if this were so the temperature of the air in the anticyclone would continually grow warmer as it advanced into lower latitudes. The most effective of the several causes which contribute to the cold of the anticyclone is doubtless radiation from the ground in the clear dry air in the rear of the cyclone. In the region of high northwest winds the volume of cold air poured in is very great and the mixing of the lower air strata is more complete than in the case of light winds. As a result the cold of radiation is communicated to a greater stratum of air and the effect of solar radiation is diminished, since the surface layers are being constantly renewed by colder air from higher latitudes. If there is little horizontal movement of the air in an anticyclone the temperatures of nighttime will be low and there will be a tendency for the colder air to collect in valleys and basins under the influence of gravity. In daytime, however, the temperatures rise sharply under the influence of solar radiation.

The average number of severe cold waves in a year in the eastern part of the United States is between three and four, and they are confined mainly to the months of January, February, and December. The great majority of cold waves that enter the United States are first noted in the British possessions north of Montana. Their course is generally thence directly eastward across the Lake region and Ohio Valley to the Middle Atlantic coast, or southeastward along the eastern slope of the Rocky Mountains to the Gulf of Mexico, and thence northeastward up the Ohio Valley and along the Atlantic coast. Cold waves occasionally also move southward over Idaho, eastern Washington, and eastern Oregon on the western side of the Rocky Mountains, and cold winds descend on the western slope of the Cascades into the interior valleys of Washington and Oregon. They may also advance from the north Pacific coast across Washington and Oregon and lodge in the Plateau region, but the most severe cold on the Pacific coast is the product of the interior and comes from the north and northeast rather than the west.

The cold wave of January 6 to 9, 1886.—The meteorological conditions which prevailed during the cold wave of January 6, 7, 8, and 9, 1886, are shown on Plates XXI to XXIV, and the position of the cold wave from day to day is shown on Plate XXV. The wind direction and velocity and temperature at each observation during the prevalence of the cold wave are given in the table below:





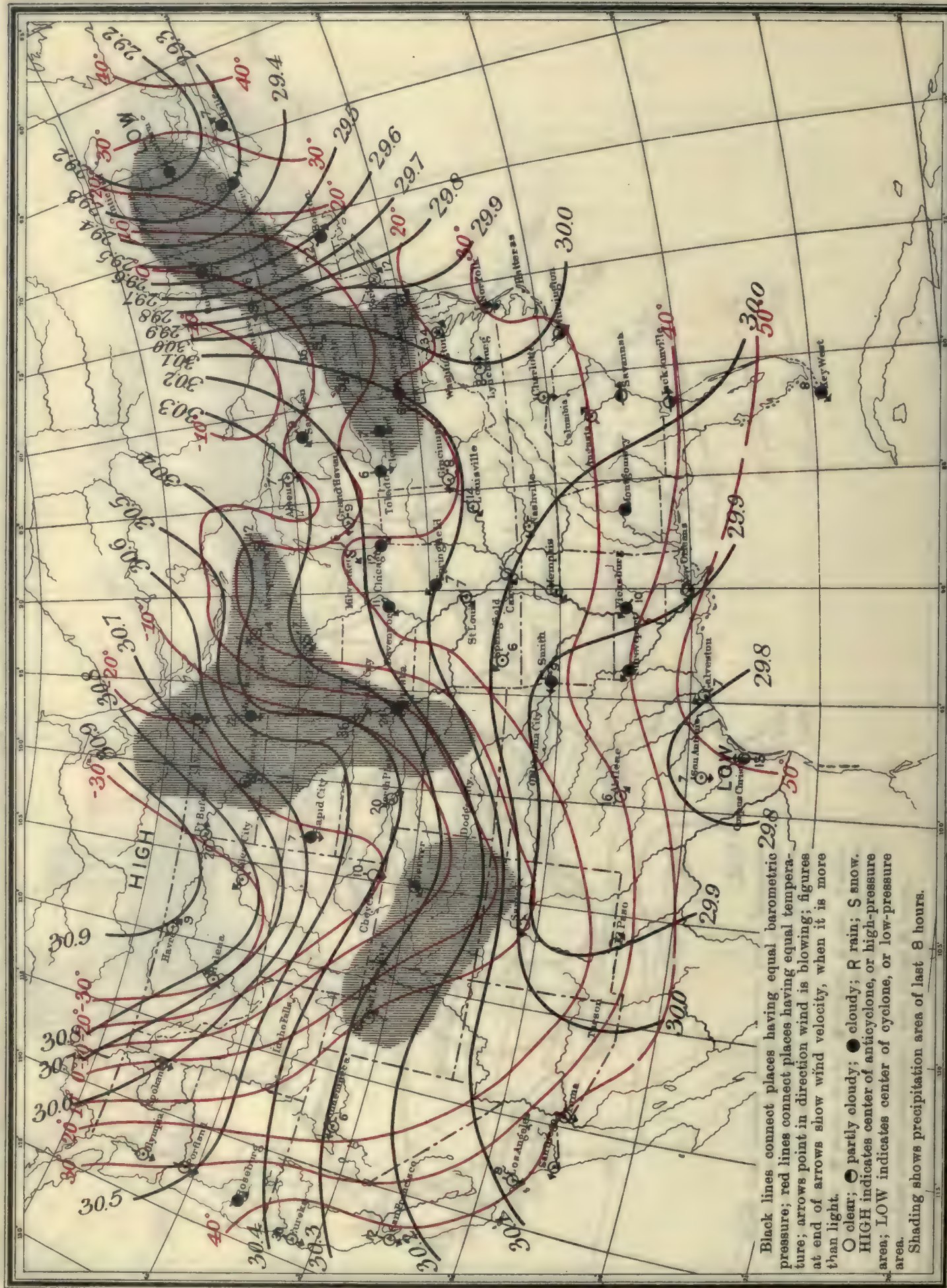
Black lines connect places having equal barometric pressure; red lines connect places having equal temperature; arrows point in direction wind is blowing; figures at end of arrows show wind velocity, when it is more than light.
 ○ clear; ● partly cloudy; ☉ cloudy; R rain; S snow.
 HIGH indicates center of anticyclone, or high-pressure area; LOW indicates center of cyclone, or low-pressure area.
 Shading shows precipitation area of last 8 hours.

IN A T-2881, T YRAUHAL AVAW QLOD DEK STAM



This map was drawn by the author, based on the information provided by the Inuit people of the region. It is intended to show the general location and shape of the landmasses, as well as the names of the various regions and settlements. The map is not intended to be a precise representation of the actual geography, but rather a guide to the general layout of the area.

PLATE XXII. COLD WAVE, JANUARY 7, 1886—7 A. M.



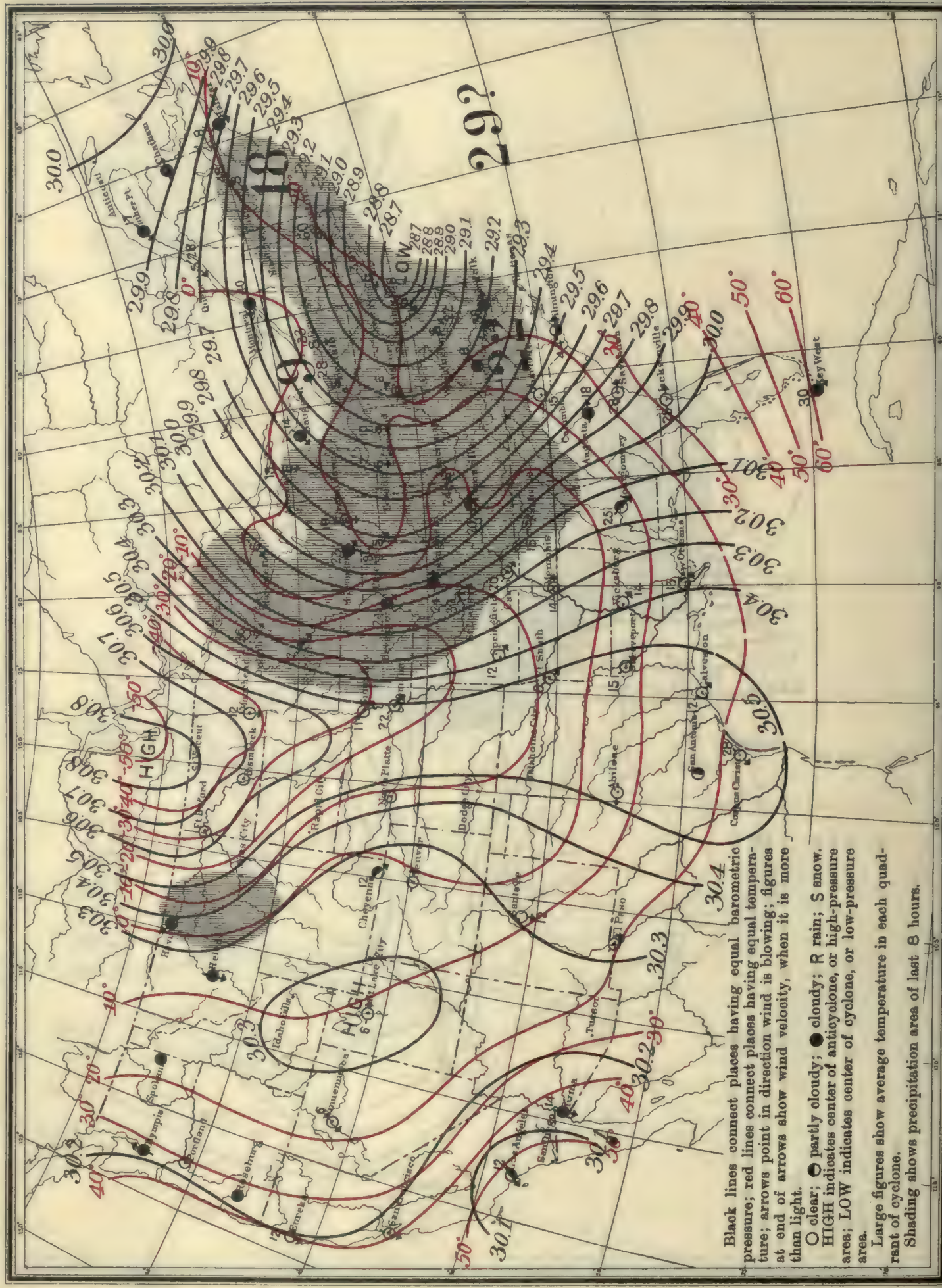
Black lines connect places having equal barometric pressure; red lines connect places having equal temperature; arrows point in direction wind is blowing; figures at end of arrows show wind velocity, when it is more than light.
 O clear; ● partly cloudy; ● cloudy; R rain; S snow.
 HIGH indicates center of anticyclone, or high-pressure area; LOW indicates center of cyclone, or low-pressure area.
 Shading shows precipitation area of last 8 hours.

DATE SENT _____ COPIES AVAILABLE _____

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PLATE XXIV. COLD WAVE, JANUARY 9, 1886—7 A. M.



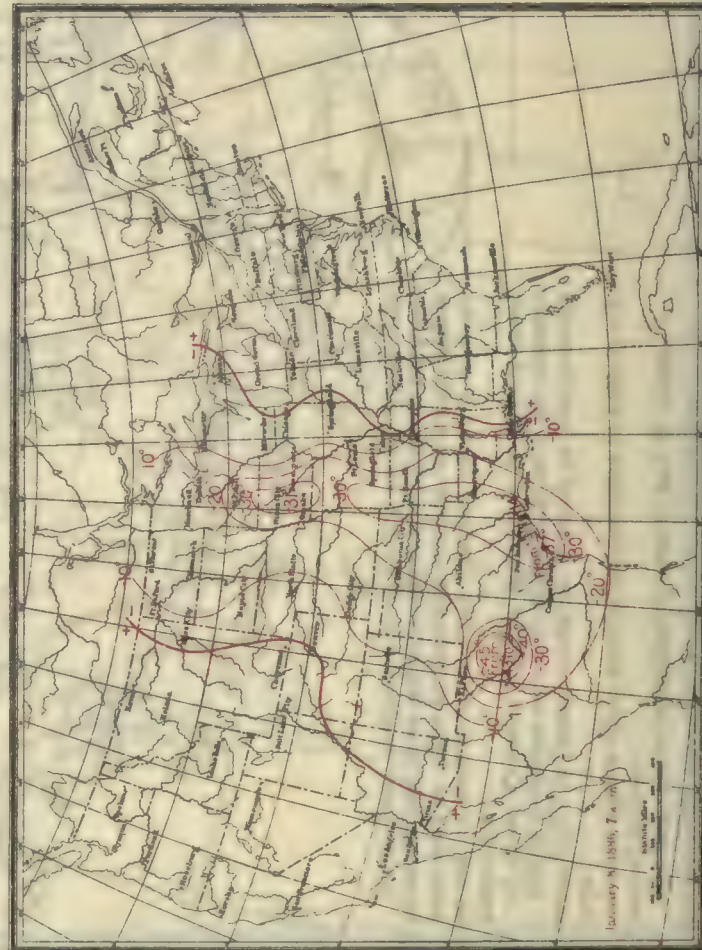
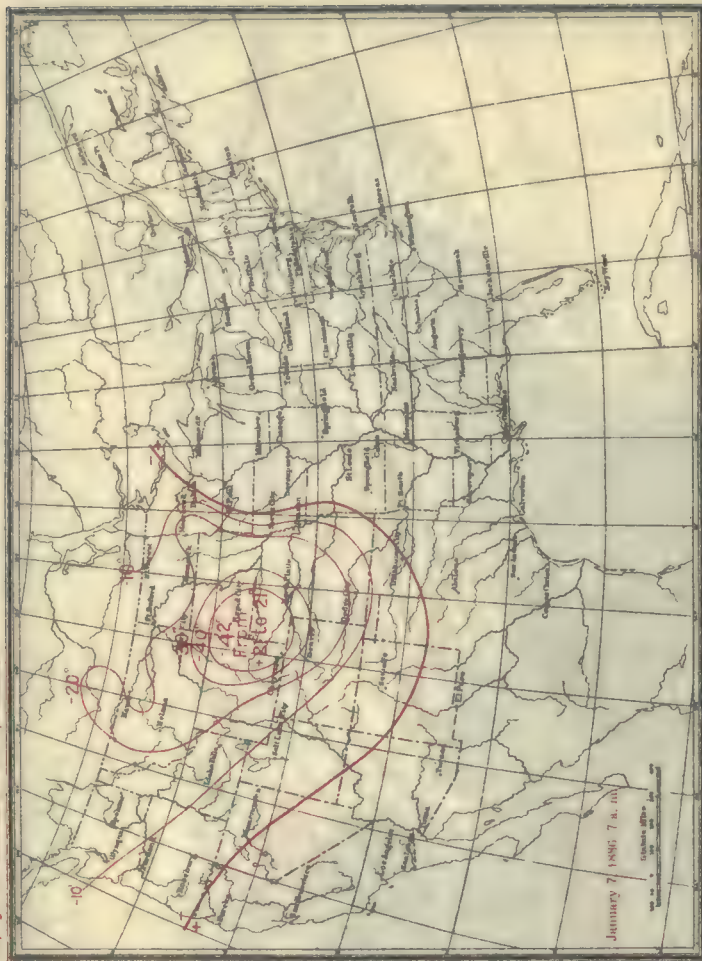
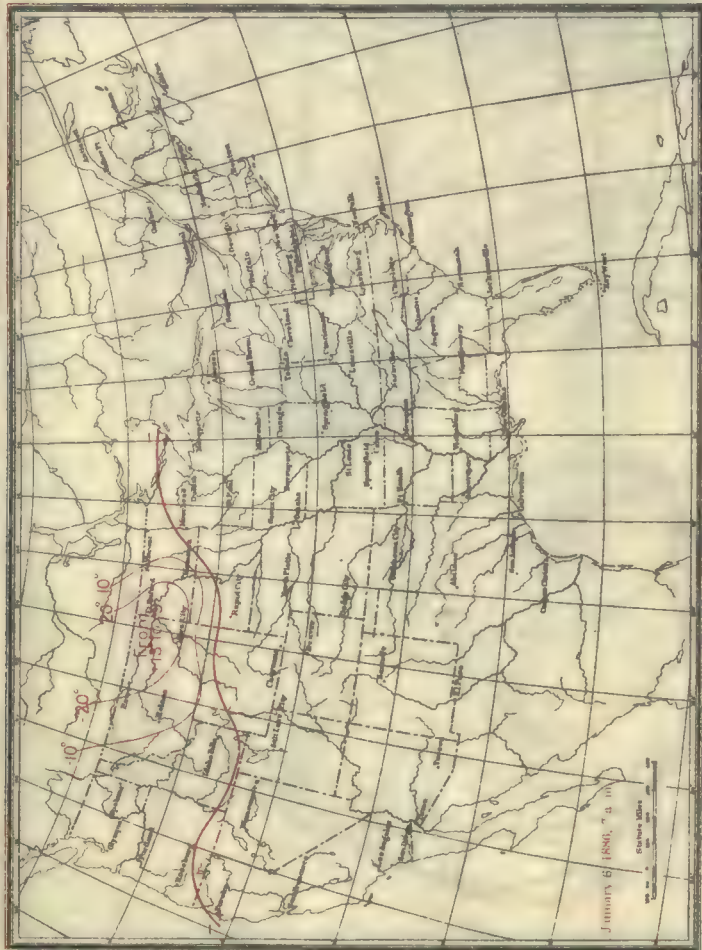
Black lines connect places having equal barometric pressure; red lines connect places having equal temperature; arrows point in direction wind is blowing; figures at end of arrows show wind velocity, when it is more than light.
○ clear; ● partly cloudy; ● cloudy; R rain; S snow.
HIGH indicates center of anticyclone, or high-pressure area; LOW indicates center of cyclone, or low-pressure area.
Large figures show average temperature in each quadrant of cyclone.
Shading shows precipitation area of last 8 hours.

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WIND DIRECTION AND VELOCITY AND TEMPERATURE DURING THE COLD WAVE OF JANUARY 6-10, 1886.

[Washington mean time.]

Station and date.	7 a. m.			11 a. m.			3 p. m.			7 p. m.			11 p. m.		
	Wind.		Tem- pera- ture.	Wind.		Tem- pera- ture.	Wind.		Tem- pera- ture.	Wind.		Tem- pera- ture.	Wind.		Tem- pera- ture.
	Direc- tion.	Veloc- ity.		Direc- tion.	Veloc- ity.		Direc- tion.	Veloc- ity.		Direc- tion.	Veloc- ity.		Direc- tion.	Veloc- ity.	
		Miles.			Miles.			Miles.			Miles.			Miles.	
Fort Assiniboine:															
Jan. 6, 1886.	NW.	19	-16				NW.	18	-22				NW.	4	-28
Jan. 7, 1886.	NW.	9	-33				E.	8	-21				E.	15	-20
Deadwood:															
Jan. 6, 1886.	NE.	1	22				NE.	7	12				NE.	4	-16
Jan. 7, 1886.	S.	7	-21				SW.	6	-18				Calm.	0	-15
Plikes Peak:															
Jan. 6, 1886.	W.	19	-4	W.	4	-4	W.	23	-7	NW.	8	-10	SW.	16	-11
Jan. 7, 1886.	NW.	16	-19	N.	16	-20	N.	17	-20	NW.	50	-27	NW.	44	-25
Jan. 8, 1886.	NW.	50	-12	N.	44	-9	NE.	34	-6	NE.	4	-4	N.	53	-6
Jan. 9, 1886.	NW.	65	-1	NW.	57	0	W.	57	1	NW.	42	-1	N.	42	-4
Jan. 10, 1886.	NW.	76	0	N.	50	5	NW.	40	5	NW.	39	6	NW.	46	6
Dodge City:															
Jan. 6, 1886.	S.	20	21	S.	14	26	S.	16	34	N.	11	19	N.	40	14
Jan. 7, 1886.	N.	26	-10	N.	23	-9	NW.	20	-9	NW.	28	-8	NW.	36	-11
Jan. 8, 1886.	NW.	20	-15	NW.	20	-9	NW.	18	-2	NW.	4	-2	NW.	7	0
Fort Sill:															
Jan. 6, 1886.	NE.	6	23				S.	21	48				S.	13	36
Jan. 7, 1886.	N.	28	22				N.	31	3				N.	18	-1
Jan. 8, 1886.	N.	21	-4				N.	21	9				N.	9	8
Galveston:															
Jan. 7, 1886.	SE.	7	57	SE.	8	62	SE.	13	63	N.	40	47	NW.	38	51
Jan. 8, 1886.	NW.	36	13	NW.	30	18	NW.	34	24	NW.	23	24	NW.	17	20
Jan. 9, 1886.	NW.	12	18	N.	12	20	N.	10	29	N.	4	32	N.	3	26
New Orleans:															
Jan. 7, 1886.	E.	4	48	SE.	3	56	SE.	3	65	SE.	10	58	SE.	7	55
Jan. 8, 1886.	W.	20	33	NW.	21	24	NW.	20	26	NW.	13	24	W.	17	20
Jan. 9, 1886.	NW.	13	16	NW.	15	18	NW.	14	26	NW.	8	28	NW.	8	26
Atlanta:															
Jan. 7, 1886.	W.	4	30	W.	2	38	SW.	5	46	SW.	7	42	S.	4	39
Jan. 8, 1886.	E.	8	38	SE.	23	37	W.	32	36	W.	31	19	W.	28	29
Jan. 9, 1886.	W.	30	6	NW.	31	4	W.	27	8	W.	24	8	W.	24	6
Jan. 10, 1886.	W.	19	2	W.	17	9	W.	18	16	W.	17	14	NW.	14	9
Jacksonville:															
Jan. 8, 1886.	SE.	12	55	SE.	12	58	SW.	26	66	SW.	24	56	W.	29	49
Jan. 9, 1886.	W.	18	33	W.	26	40	W.	22	40	W.	10	34	W.	21	31
Jan. 10, 1886.	W.	8	21	W.	16	32	W.	16	38	W.	7	33	W.	5	29
Cincinnati:															
Jan. 8, 1886.	NE.	13	17	E.	12	20	NE.	17	21	NE.	9	20	NW.	17	18
Jan. 9, 1886.	W.	24	-2	W.	27	-2	W.	27	-2	W.	27	-2	W.	27	-6
Jan. 10, 1886.	W.	20	-6	NW.	14	-9	W.	15	-1	W.	15	-2	NW.	15	-8
Washington:															
Jan. 8, 1886.	NW.	5	21	NE.	5	28	E.	7	34	NE.	14	32	NE.	11	28
Jan. 9, 1886.	NW.	10	23	NW.	21	23	NW.	16	25	W.	8	24	N.	14	26
Jan. 10, 1886.	W.	21	10	NW.	14	22	NW.	12	17	NW.	9	14	NW.	20	14

The cold wave here illustrated belongs to the class which enters the United States from the region north of Montana and sweep southeastward over the western plains to the Gulf of Mexico where they divide, one portion continuing southward as a brisk north wind over Mexico and the west Gulf, and a second portion passing northeastward in the rear of the retreating cyclone. The southeastward movement is very rapid, and the premonitory signs are sometimes not well marked. On the weather map of January 6, Plate XXI, the high pressure at a single station coupled with the ill-defined cyclone over western Kansas, and the general wind circulation over Montana and the Dakotas were the only indications of a swift southward advance of an area of high pressure and low temperature. Eight hours after the observations

that appear on the map of January 6, 1886 were made, the barometer over Montana had risen nearly half an inch and snow was falling with temperatures of 10° to 12° below zero. By nightfall the winds had become northerly over the whole of the eastern slope of the Rocky Mountains north of Indian Territory and the line of zero temperature had advanced to western Nebraska. The southward sweep of the cold is shown by the weather map of January 7, Plate XXII, from which it will be seen that the line of zero temperature includes the entire northeastern Rocky Mountain region, including Kansas, Nebraska, and the Dakotas. The cold wave increased both in extent and intensity on the 7th, the temperature over the area of greatest fall being from 20° to 30° below zero. Immediately in front of the cold wave, viz, over the States of Nebraska, Kansas, and Oklahoma, northerly gales with blinding snow storms prevailed. In these regions a number of lives were lost and thousands of cattle perished. The wave of intense cold swept rapidly southward over the Plains region and reached the Texas coast on the evening of the 7th. Its rate of movement was between 30 and 40 miles per hour, and it was accompanied throughout its entire course from the Dakotas to the Gulf of Mexico by high northerly winds and snow. The temperature at Galveston, on the Texas coast, fell from 65° at 12 midnight of the 7th to a minimum of 11° by the morning of the 8th, a drop of 54° in less than eighteen hours. At New Orleans the temperature fell to 15.2° on the morning of the 9th; at Charleston, S. C., to 10.5° on the morning of the 11th, and at Jacksonville, Fla. to 15.3° on the morning of the 12th.

The cold wave above described forms a striking example of the tremendous changes that occasionally take place in the air temperatures over the country east of the Rocky Mountains. The fall in temperature in this instance was due largely to the southward movement of masses of cold air from northern latitudes in the early stages of development, and from a westerly quarter in the later stages plus the effect of terrestrial radiation in the clear dry air of the anti-cyclone. The fall in temperature was noticeable on the summits of the Rocky Mountains as indicated by the observations for Pikes Peak given in the table above. The fall in temperature on the mountain peaks, however, lagged somewhat behind the fall over the level country to the eastward where northerly winds with falling temperature set in on the afternoon of the 6th. The lowest temperature was recorded on Pikes Peak about 9 p. m. local time January 7, synchronous with the shift of the winds to the northwest. The wind velocities on the Peak on the 9th and 10th, when the cyclonic center was off the Middle Atlantic coast, averaged about 55 miles per hour, the total wind travel being over 1,200 miles on each day. The continued sweep of air over the Rocky Mountain summits for over forty-eight hours was due to the very great depth of the Atlantic coast cyclone, where it may be noted pressure was below 28 inches.

Lower temperatures than those of January, 1886, have been experienced in Eastern and Southern States, notably in connection with the cold waves of February, 1899. In that month a minimum temperature of 1° below zero was registered at Mobile, and a minimum of 10° above zero at Jacksonville, Fla. In this case a series of cold waves had traversed the Northwestern States during the early days of the month, and extremely cold weather prevailed from the British Northwest southward to the west Gulf States. In this case the cyclone, which was the immediate forerunner of the low temperatures, developed farther to the southward than in January, 1886, and the prevailing temperatures to the west and northwest were also lower. These two facts, viz, greater proximity to the source of the cold, and the movement of the cyclone in lower latitudes are sufficient to account for the low temperatures of February, 1899.

PERIODS OF ABNORMALLY HIGH TEMPERATURE—HEATED TERMS.

Periods of abnormally high temperatures, in brief, "heated terms" occur at irregular intervals in nearly all portions of the temperate latitudes. In the United States the heated term reaches its fullest development in the northern and central portions of the Mississippi Valley and thence eastward to the Atlantic coast. It is not experienced in the Rocky Mountain and Plateau regions, because whatever the day temperatures may be the nights are cool by reason of the altitude in conjunction with the rapid radiation of heat, from the surface of the ground, that begins as soon as the sun sets. The high altitudes and clear skies of the Plateau

region are both favorable to rapid nocturnal radiation. Hot spells of the extent and duration experienced in northeastern districts are likewise unknown on the Pacific coast, although several days of extremely warm weather may be experienced, even to the immediate coast line. In the interior valleys of California a hot, dry north wind occasionally blows. In some portions of the State the hot wind is dust laden and exceedingly trying to both man and beast.

Heated term of August, 1896.—Heated terms are usually associated with extensive and prolonged drought. Together they seriously interfere with trade and commerce, and greatly increase the mortality, especially in the cities. Some idea of the loss of life due to sunstroke and excessive heat may be had from the statement that during the three weeks that ended August 22, 1896, there were 2,036 known deaths in the United States directly attributable to sunstroke. Large as this number is, it doubtless falls far short of the actual number of cases.

In a study of the subject of sunstroke so far as it is connected with and dependent upon the meteorological conditions, Dr. W. F. R. Phillips, medical climatologist, reached the following conclusions:

(a) That the number of sunstrokes follows more closely the excess of temperature above the normal than it does that of any other meteorologic condition.

(b) That the number of sunstrokes does not appear to sustain any definite relation to the relative humidity, the maximum fatalities having occurred in one region with a relative humidity above the average, and in the other region with a relative humidity decidedly below the average.

(c) That although the absolute humidity was greatest during the maximum of sunstrokes, yet it does not appear that the variations influenced the number of cases.

Doctor Phillips further remarks:

If it be taken into consideration that the maximum quantity of aqueous vapor in a given space is limited by the temperature of the vapor, and that the relative humidity is really not a simple meteorologic element, but the expression of a ratio that depends on both the aqueous vapor and the temperature, it would seem that the statistics herein collected confirm the proposition that sunstroke is ultimately due to excessive atmospheric temperature. In other words, sunstroke will not occur unless the atmospheric temperature be much greater than that to which the individual is accustomed, no matter what may be the state of the other meteorologic elements. The important point to be determined from our statistical tables is the atmospheric temperature that will produce sunstroke. Referring again to the tables, it will be observed that, for instance, in the city of Boston a number of people were prostrated and some killed by sunstroke when the mean temperature of the day rose to 82°, or 13° above the August normal; but there were thousands of people living there at the same time that were unhurt by this high temperature as far as can be told; it is therefore evident that some people can withstand a higher temperature than others; in other words, there is a personal equation to be taken into consideration. Again, it will be seen that while a mean temperature of 82° was fatal or injurious to a large number of people in Boston, yet the same degree of heat is the customary August temperature which the inhabitants of New Orleans endure without sunstroke or any particular inconvenience. Evidently there must enter into the case another factor, namely, the accommodation of the individual to average physical environment, or the climatic equation, and it is apparent therefrom that the temperature likely to cause sunstroke varies with the climate of the locality; hence, each particular locality has for its native or acclimated inhabitant a special local sunstroke temperature or range of temperature.

As a provisional index to the "sunstroke temperature" of each climate the author proposes the use of the average or normal maximum daily temperature during the warm season of the year, and as a working hypothesis derived therefrom, submits the following proposition: Sunstroke becomes imminent during the summer months, when the mean temperature of any one day, or of several consecutive days, becomes equal, or nearly equal, to the normal maximum temperature for the same period. (Monthly Weather Review, November, 1896, p. 409.)

TEMPERATURE STATISTICS OF EACH DAY AT CERTAIN SELECTED STATIONS DURING THE SUNSTROKE EPIDEMIC OF
AUGUST 3 TO 18, 1896, INCLUSIVE.

MEAN TEMPERATURE.

	August, 1896.																	
	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.		
Coastal region:	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	
Albany, N. Y.....	72	78	82	83	82	82	82	84	83	82	77	76	75	74	69	64		
Boston, Mass.....	71	78	72	65	77	75	82	86	82	82	76	71	67	74	72	68		
New Haven, Conn.....	71	77	80	72	77	81	82	84	83	84	82	74	72	73	69	64		
New York, N. Y.....	74	77	80	82	80	82	82	84	85	84	81	75	74	73	68	65		
Philadelphia, Pa.....	77	79	82	86	84	86	87	84	87	87	85	77	79	78	74	71		
Washington, D. C.....	78	80	83	88	87	84	87	84	84	86	82	78	77	79	73	71		
Interior:																		
Chicago, Ill.....	77	82	84	79	77	87	83	86	81	73	72	78	76	72	68	65		
Cincinnati, Ohio.....	78	78	81	85	76	84	85	84	82	78	80	78	82	76	68	70		
St. Louis, Mo.....	82	86	88	90	91	91	90	84	86	82	79	81	86	77	72	72		
Southern region:																		
Charleston, S. C.....	84	80	83	82	82	85	87	86	84	82	84	82	80	84	86	80		
Jacksonville, Fla.....	86	84	82	83	84	84	86	86	86	84	85	83	84	84	84	86		
New Orleans, La.....	82	86	86	84	84	81	78	82	82	86	84	82	80	82	85	87		
Western region:																		
Denver, Colo.....	77	78	74	71	74	76	76	74	68	72	77	78	76	74	73	71		
Los Angeles, Cal.....	70	70	68	66	70	68	69	68	70	69	71	72	71	74	76	74		

DEPARTURE OF THE DAILY MEAN TEMPERATURE FROM THE NORMAL AT CERTAIN STATIONS FROM AUGUST 3
TO 18, 1896, INCLUSIVE.

	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Coastal region:																	
Albany, N. Y.....	0	+6	+10	+11	+10	+10	+11	+13	+12	+11	+6	+5	+4	+3	-2	-7	
Boston, Mass.....	+1	+8	+2	-5	+7	+5	+13	+17	+13	+13	+7	+2	-2	+5	+3	-1	
New Haven, Conn.....	+1	+7	+10	+2	+7	+11	+13	+15	+14	+15	+13	+5	+3	+4	0	-5	
New York, N. Y.....	+1	+4	+7	+9	+7	+9	+10	+12	+13	+12	+9	+3	+2	+1	-4	-7	
Philadelphia, Pa.....	+3	+4	+6	+10	+10	+11	+11	+8	+12	+12	+10	+3	+5	+4	-1	-2	
Washington, D. C.....	+3	+5	+8	+13	+12	+9	+13	+10	+10	+12	+8	+4	+3	+5	-1	-3	
Interior:																	
Chicago, Ill.....	+5	+10	+13	+8	+5	+15	+12	+16	+9	+1	+1	+8	+6	+2	-6	-7	
Cincinnati, Ohio.....	+2	+2	+5	+9	0	+8	+10	+9	+7	+3	+5	+3	+7	+1	-7	-5	
St. Louis, Mo.....	+4	+9	+11	+12	+13	+13	+12	+5	+8	+4	+1	+3	+8	-1	-6	-6	
Southern region:																	
Charleston, S. C.....	+3	-1	+2	+1	+1	+4	+7	+6	+4	+2	+4	+2	0	+4	+6	0	
Jacksonville, Fla.....	+4	+2	0	+1	+2	+2	+4	+4	+4	+2	+3	+1	+2	+2	+2	+4	
New Orleans, La.....	0	+4	+4	+2	+2	-1	-4	0	0	+4	+2	0	-2	0	+3	+5	
Western region:																	
Denver, Colo.....	+5	+6	+3	0	+3	+5	+5	+3	-3	+1	+7	+8	+6	+4	+3	+1	
Los Angeles, Cal.....	-2	-2	-4	-6	-3	-5	-4	-5	-3	-4	-2	-2	-3	0	+3	+1	

MINIMUM TEMPERATURE.

	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Coastal region:																	
Albany, N. Y.....	62	66	70	72	73	71	73	74	72	72	70	66	64	69	61	54	
Boston, Mass.....	61	67	63	61	64	70	72	76	76	75	70	67	64	64	66	58	
New Haven, Conn.....	61	66	69	66	69	70	73	75	73	74	73	70	65	68	61	53	
New York, N. Y.....	68	67	70	74	68	73	75	77	76	77	74	70	70	69	63	57	
Philadelphia, Pa.....	66	68	71	75	74	76	78	75	77	77	76	72	71	67	70	62	
Washington, D. C.....	69	70	70	77	77	75	77	76	74	76	70	70	68	70	65	62	
Interior:																	
Chicago, Ill.....	68	69	73	73	72	76	73	78	70	70	70	72	68	68	58	60	
Cincinnati, Ohio.....	69	68	70	74	70	73	76	75	72	71	72	71	73	71	60	62	
St. Louis, Mo.....	72	74	78	80	82	82	82	78	76	70	69	74	74	69	67	66	
Southern region:																	
Charleston, S. C.....	72	75	78	78	77	78	79	80	78	76	79	76	74	78	78	71	
Jacksonville, Fla.....	77	71	72	76	75	76	78	78	76	76	76	71	74	75	76	77	
New Orleans, La.....	75	77	75	77	77	74	70	74	75	77	76	76	74	75	77	79	
Western region:																	
Denver, Colo.....	63	67	63	53	58	61	58	54	56	52	61	64	59	61	59	60	
Los Angeles, Cal.....	61	62	59	56	57	54	55	58	61	56	58	59	61	63	66	63	

MINIMUM TEMPERATURES OF 75° AND OVER AT WASHINGTON, D. C., DURING EACH SUMMER FROM 1872 TO 1904, INCLUSIVE, TOGETHER WITH THE MAXIMUM ON THE SAME DATES.

Date.	Max.	Min.	Date.	Max.	Min.	Date.	Max.	Min.	Date.	Max.	Min.
1872.	°	°	1876.	°	°	1882.	°	°	1894.	°	°
July 1.....	96	78	July 3.....	91	76	June 25.....	95	76	July 28.....	95	76
July 2.....	98	79	July 4.....	96	74	June 26.....	91	77	1896.		
July 3.....	101	78	July 5.....	94	73	1883.			July 5.....	85	75
July 4.....	97	78	July 8.....	95	76	July 4.....	94	75	July 14.....	88	75
July 14.....	96	76	July 9.....	97	80	July 23.....	96	77	July 21.....	86	75
July 15.....	89	75	July 10.....	97	80	August 3.....	84	77	July 28.....	92	75
July 16.....	93	77	July 11.....	98	77	1885.			August 6.....	98	77
July 17.....	93	77	July 12.....	98	76	July 21.....	96	74	August 7.....	97	77
July 18.....	95	76	July 13.....	93	75	July 22.....	95	77	August 8.....	95	75
July 26.....	94	75	July 15.....	92	75	July 23.....	88	74	August 9.....	97	77
July 31.....	86	76	July 18.....	93	74	July 24.....	91	75	August 10.....	93	76
August 12.....	98	75	July 19.....	95	78	July 25.....	95	75	August 11.....	94	74
August 13.....	97	76	July 20.....	98	80	1887.			August 12.....	96	76
August 14.....	98	75	1877.			July 14.....	94	76	1898.		
August 19.....	96	77	July 27.....	98	75	July 16.....	100	74	July 3.....	100	79
August 20.....	92	76	1878.			July 18.....	103	76	July 30.....	99	76
August 21.....	91	74	July 9.....	94	77	July 25.....	89	75	August 3.....	93	77
August 22.....	96	76	July 10.....	96	74	July 26.....	91	75	1900.		
August 26.....	92	75	July 18.....	98	76	July 30.....	92	75	July 17.....	98	77
1873.			July 19.....	96	74	July 31.....	87	76	July 18.....	99	77
July 3.....	101	78	July 21.....	96	76	1888.			August 8.....	96	77
July 17.....	97	76	1879.			August 7.....	93	75	August 9.....	96	76
July 26.....	94	78	August 4.....	92	75	1889.			August 10.....	97	78
August 1.....	98	76	August 6.....	89	75	July 9.....	92	75	August 11.....	101	74
1874.			1880.			July 10.....	92	75	August 14.....	92	75
June 9.....	102	77	July 10.....	96	75	July 11.....	89	76	1901.		
June 28.....	95	75	July 11.....	94	75	1890.			July 1.....	102	78
June 29.....	101	78	July 13.....	98	76	July 9.....	90	76	July 5.....	95	75
July 9.....	98	76	July 14.....	94	77	July 17.....	96	75	July 29.....	97	76
July 10.....	95	75	July 15.....	90	74	1891.			1904.		
July 11.....	87	74	September 5.....	91	75	August 11.....	93	75	July 18.....	92	77
1875.			1881.			1892.			July 19.....	92	75
June 26.....	95	76	July 6.....	97	77	July 25.....	97	77			
June 27.....	97	76	July 12.....	93	75	July 26.....	99	77			
July 6.....	96	75	July 13.....	98	75	July 27.....	98	79			
1876.			August 6.....	97	76						
July 2.....	94	76	August 13.....	101	74						

In the discussion of the above paper before the American Climatological Association,^a the fact that continuous high temperature, both day and night for at least two days were much more effective in the causation of sunstroke than one or two days of high temperature was brought out and emphasized.

The writer has also pointed out that serious bodily discomfort is rarely experienced except when the temperature of nighttime does not fall below 75°. (Annual Report Chief of Weather Bureau, 1897, p. 264.)

In the light of the minimum temperatures published in the table it would appear that, as pointed out by Doctor Phillips, in the case of the mean temperature, the critical nighttime temperature varies for different localities. For New York, Philadelphia, and the Middle Atlantic States generally the figure above given, viz, 75°, is believed to be correct; for New England it would appear to be too high; 70° to 72° would seem to be more appropriate. In the central valleys above the thirty-seventh parallel a provisional value of 74° is suggested.

The above tables contain a record of (1) the daily mean temperature, (2) the departures from the normal, and (3) the minimum temperatures at a group of selected stations during the hot spell of August 3-18, 1896, and, finally, a record of all minimum temperatures above 75° at Washington, D. C., from 1872 to 1904, both inclusive. In regard to the latter it may be observed

^a Transactions of the American Climatological Association, vol. 13, pp. 234-237.

that the thermometer shelter in use between 1872 and 1885 did not admit of as perfect ventilation as in subsequent years, and for that reason it is believed the records are less trustworthy. From 1885 to 1904 the thermometers were exposed in a standard roof shelter, through which the air circulated with considerable freedom. For sustained high temperatures the period August 6 to 12, 1896, with an average maximum of 95° and an average minimum of 76° is the most remarkable of the last twenty years. The summers of 1872, 1876, 1878, and 1880 were also characterized by high night temperatures. During the thirty-three years, 1872 to 1904, there have been 14 periods of high night temperatures of three or more consecutive days, 6 of which were of three days' duration, 4 of four days, 2 of five days, and 1 each of six and seven days, respectively.

The cause of the heated term is to be found in the pressure distribution over the North American continent and the Atlantic Ocean. The belt of high pressure which surrounds the globe having its maximum about 30° north latitude is more stable and unyielding in some years than in others. In a normal year this belt of high pressure where it projects over the southern portion of the United States may be considered as a series of detached areas of high pressure separated by trough-like valleys of lower pressure which move slowly eastward. As these barometric troughs drift eastward there is sufficient overturning in the lower layers of the atmosphere to cause showers and thunderstorms at more or less regular intervals, and with these there can be no excessive heating. When heated terms prevail the barometric troughs above referred to do not extend south of the Lake region, and as a consequence an unbroken area of high pressure covers the Gulf and South Atlantic States, from which southerly winds blow over the interior valleys and the Middle Atlantic States. As a result of the southerly winds and unbroken insolation of midsummer the earth's surface becomes heated to an unusual degree. More heat is gained by day than is lost by radiation at night, and thus the night temperatures slowly rise.

The length of time a heated term will continue in eastern districts is always a matter of considerable uncertainty, depending as it does upon the pressure conditions over the southeastern States and the adjacent ocean.

Fluctuations of pressure and temperature in a heated term.—The records of pressure and temperature as automatically registered at Washington, D. C., during August, 1900, are reproduced below, figs. 4 and 5. The month of August, 1900, was characterized not by high individual maximum temperatures, but by the large number of days with the maximum temperatures in the nineties. Thus at St. Louis there were 24; at Memphis, 20; St. Paul, 11; Chicago, 10; Detroit, 8; Cincinnati, 15; Pittsburg, 12; Philadelphia, 13; and Baltimore, 17. At Washington, D. C., there were seventeen days with maximum temperatures above 90° , of which fourteen were successive. The mean temperature of the month as a whole was the highest on record over the Lake region, the Ohio Valley, and the Middle Atlantic States. The shaded areas on the small chart, fig. 6, show the regions of high temperature during August, 1900, and the amount of the abnormality is shown by the lines of equal departure. The line of demarcation between the regions of abnormally high and abnormally low temperature passes about due north and south along the crest of the Rocky Mountains. Within the general area of high temperatures east of the Rocky Mountains may be found smaller areas of excessive local heating, as at St. Paul, where the monthly mean, 77° , was the highest recorded in eighty years. The important fact illustrated by this chart, however, is the very general heating of the lower layers of the atmosphere over practically the whole country east of the Rocky Mountains, as opposed to any special local heating. This great mass of heated air continued to occupy the interior valleys and eastern districts until September 12, when it was broken up and dispersed by a vigorous cyclone that passed over the Lake region the day previous.

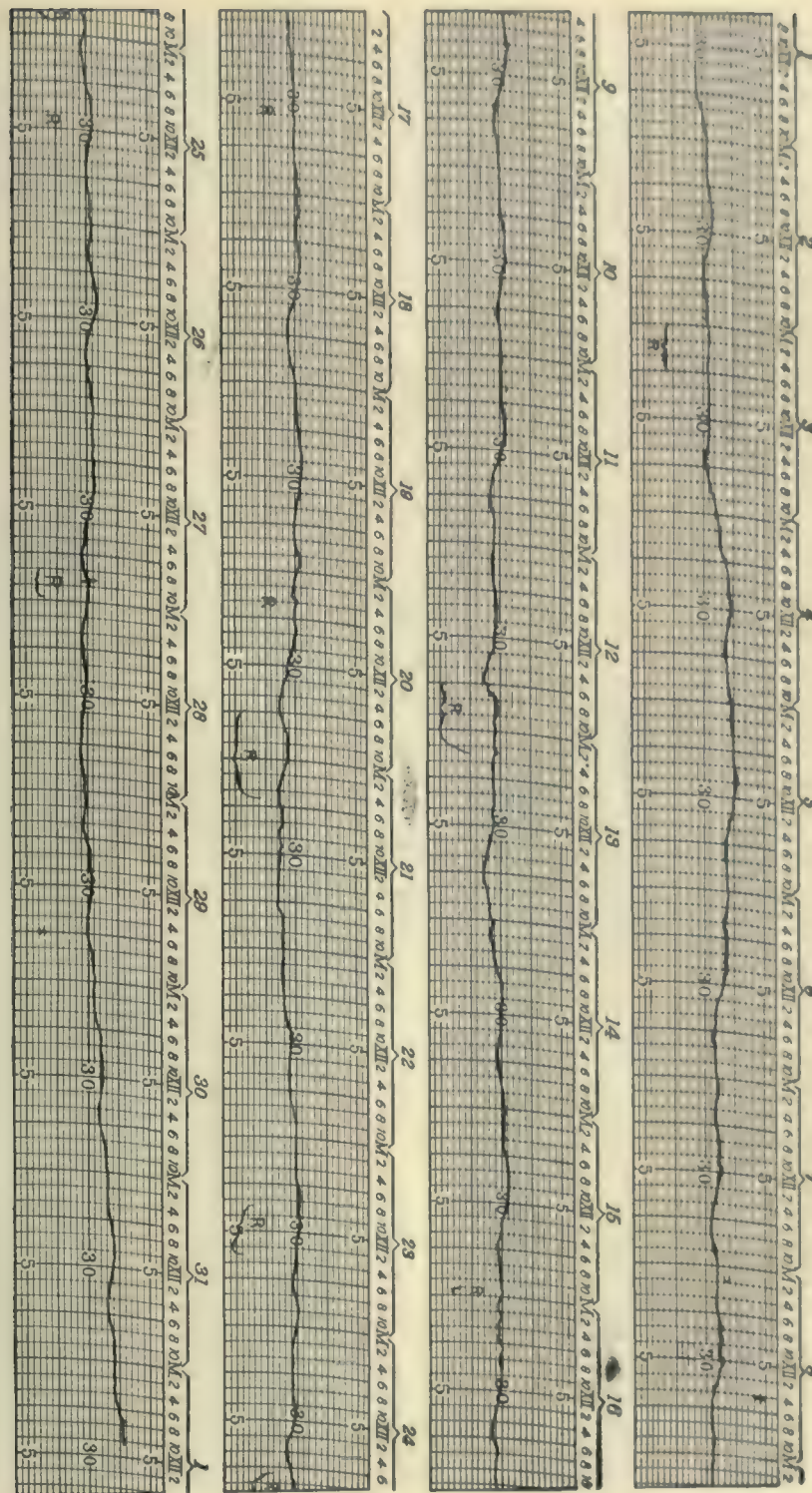


FIG. 4.—Daily barograph trace, Washington, D. C., August, 1900. The letter "R" indicates periods of rainfall.

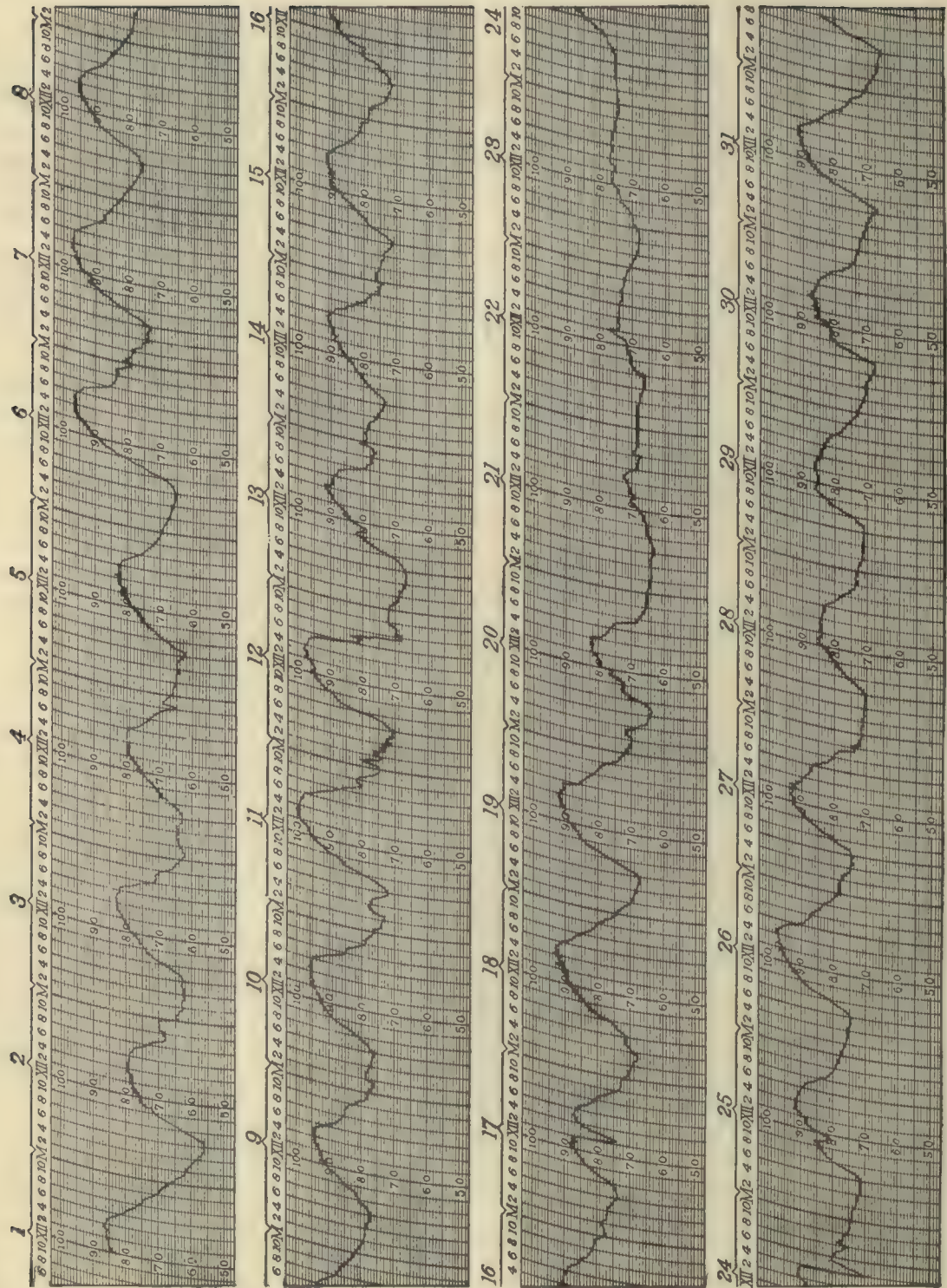
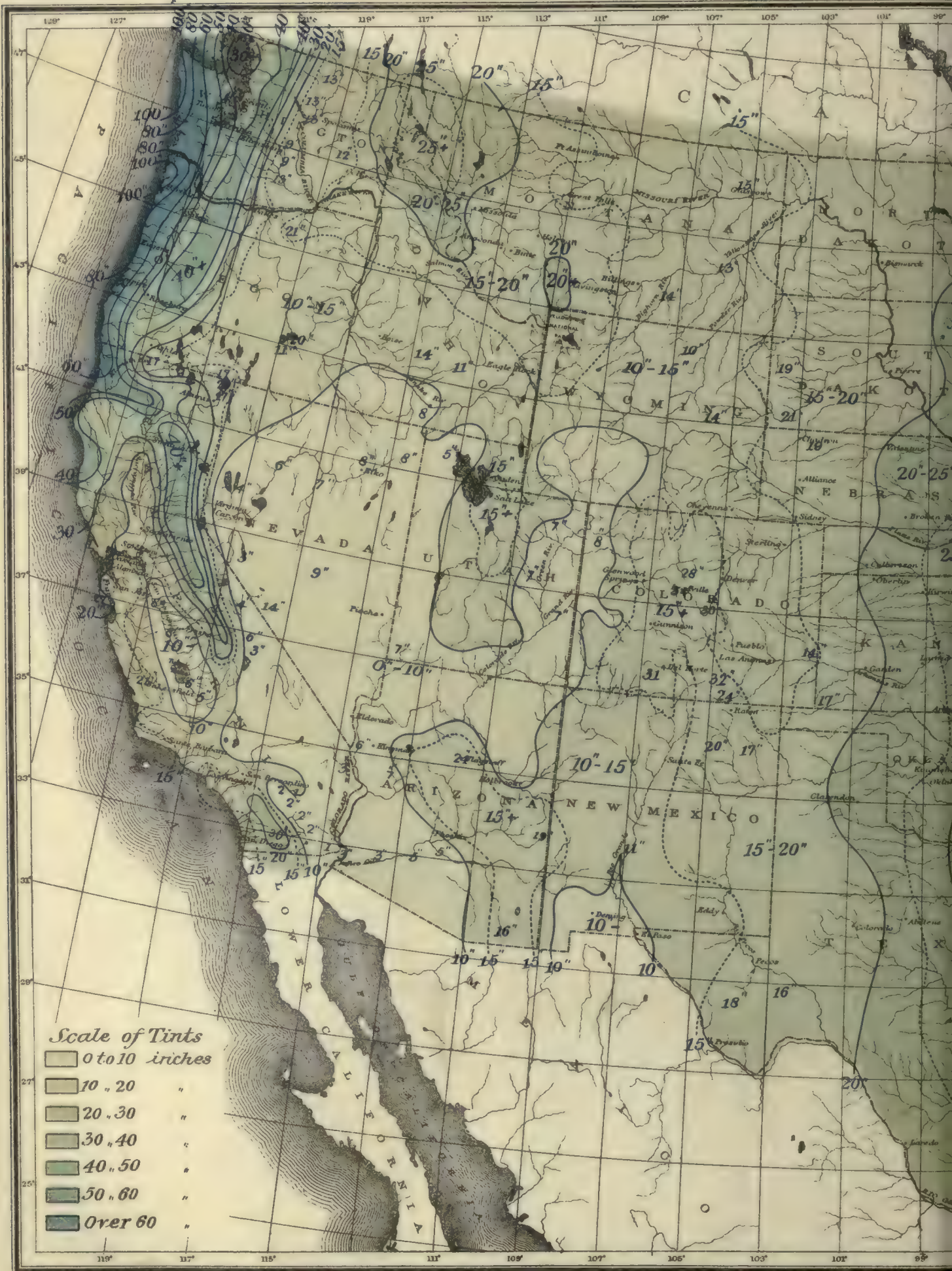


FIG. 5.—Daily thermograph trace, Washington, D. C., August, 1900.



FIG. 6.—Temperature departures in the United States; August, 1903, a hot month east of the Rocky mountains.





ON IN THE UNITED STATES.





Precipitation.

When a mass of air containing vapor is cooled below the dew point a portion of its vapor will be condensed. If condensation takes place at temperatures above 32° , the product will be water in the form of minute particles of fog or mist. The particles thus formed may float away with the wind or they may increase in size, coalesce, and fall to the ground of their own weight. Whether the condensation of vapor thus outlined results simply in cloud, or whether rain falls, depends on the magnitude of the temperature changes that take place in the air mass whose vapor is being condensed.

The air may be cooled sufficiently to produce rain in several ways. Cooling by expansion as air ascends is probably the most effective cause of rainfall. An ascensional movement of air may be brought about in several ways, chief of which are: (1) The air may be forced up the side of a mountain into a region of diminished pressure and lower temperature, as happens whenever a mountain range runs in a direction at right angles to the prevailing winds; (2) by convectional overturning of the lower layers of the atmosphere under the influence of solar radiation, thus inducing ascensional currents—summer thunderstorms are largely a result of this process; (3) last, and doubtless most important of all, is the circulation of air in cyclonic storms, viz, a radial inflow from all sides and an ascensional movement in the center. A very large percentage of the rain of the United States is precipitated in connection with the movement of storms of the latter class.

The moisture that is held in suspension in the air may be condensed into rain in still another way, viz, that of cooling by direct contact, such as would be caused at the bounding surfaces of two layers of air, the one flowing transversely across the other, provided of course one of the layers is initially colder than the other. In general, surface winds that are relatively cool, blowing into a region of contrary winds and high temperature, will produce abundant precipitation, as, for example, when cool northerly winds underrun the moisture-laden winds from the Gulf of Mexico. If the barometric and thermometric gradients are light, the condensation products will, in general, not pass beyond the cloud or fog stage.

Among the causes which contribute to an abundant rainfall are: (1) Nearness to the ocean or other large body of water; (2) a location within or near the track of cyclonic storms; (3) mountain ranges, particularly those running in a direction at right angles to the direction of the rain-bearing winds. These conditions may operate singly or in combination. Condition 1 alone is not always effective in producing rainfall, as witness the South Pacific coast; likewise condition 2 alone is not so effective in the interior of continents, far removed from an abundant supply of vapor, as in coastal regions. Montana and North Dakota, while lying directly within one of the great storm paths, are too far removed from the ocean to receive abundant rainfall, although other conditions are favorable. The rainfall of the North Pacific coast is an example of the combined effect of all three conditions.

The conditions unfavorable to rainfall are chiefly those of geographic position, viz, remoteness from the ocean and the average track of barometric depressions. Aridity may also be due to purely topographic causes; thus the light rainfall of the Great Basin is attributed to the fact that the rain-bearing winds are robbed of the greater portion of their moisture by the high mountain ranges that form the western border. The mountain parks of Colorado, deep valley-like basins surrounded by high mountains, are also regions of diminished rainfall, since there is practically no ascensional movement of the air except that due to local convection in the summer season. Valleys that trend east-west in the Rocky Mountain region, parallel to the prevailing winds, are also dry.

Geographic distribution of precipitation; general features.—The distribution of rain and snow over the United States is graphically shown on Chart XXVI, and the numerical values for more than 650 stations are given in the tabular data for the several States and Territories. The registers used in the preparation of this chart were those of Weather Bureau stations that have been in operation since 1870, supplemented in many cases by private registers kept by cooperating voluntary observers.

The main facts regarding the geographic distribution of precipitation in the United States are as follows:

Pacific coast States.—There is a narrow belt of very heavy rainfall on the northwest coast, extending from Cape Flattery on the north to midway of the Oregon coast on the south, and inland as far as the summits of the Coast Range.

In this, the region of greatest precipitation in the United States, the annual amount varies between 70 and 135 inches. It is least at the mouth of the Columbia River and greatest in Tillamook County, Oreg., where carefully kept records give amounts ranging from about 100 inches along the coast to upward of 130 inches at a single station 25 miles inland, at an elevation of 525 feet. The very great rainfall at this single station is doubtless due to the local topographic features. From the coast of southwestern Oregon to San Francisco, Cal., the annual fall diminishes from about 67 to 22 inches, and from the last-named point to San Diego, latitude $32^{\circ} 43'$, to a little less than 10 inches, being a variation of about 100 inches (110 to 10 inches) from the Straits of Juan de Fuca to extreme southern California.

The rain-bearing winds along the Pacific coast and over the interior valleys of Washington, Oregon, and California are southeasterly to westerly. Rain almost invariably begins with a southeast wind and continues as the winds shift successively to south, southwesterly, and westerly. Northerly winds bring fair weather at all seasons. As a consequence both slopes of the Coast Range are well watered during the rainy season of November to May, although the fall on the Pacific side is the heavier.

In the great valley of California the annual fall ranges from about 10 inches at Fresno, in the southern portion, to about 25 inches in the northern portion. In Oregon the upper portion of the Willamette Valley has somewhat more than 20 inches, while the lower portion has about 45 inches. In Washington the annual fall in the Puget Sound region averages about 45 inches, being somewhat more in the southern portion and somewhat less in the northern portion.

On the western slope of the Sierra Nevada and the Cascades the fall increases rapidly from the floor of the valley, as one ascends the mountains, reaching a maximum somewhere between the 3,500 and 5,000 foot levels, respectively. The maximum annual amount on the western flanks of these mountains is probably as much as 100 inches in Washington and Oregon, and 40 to 80 inches in California. From these values the precipitation diminishes slowly until the summits are reached, and then falls away to an insignificant amount at the eastern base of the mountains.

Precipitation of the Plateau region west of the Rocky Mountains.—The Cascade and Sierra Nevada ranges intercept and condense into rain and snow the moisture that would otherwise fall upon that vast stretch of rugged, mountainous country extending directly eastward to the backbone of the continent. Thus a single massive topographic feature controls the rainfall of a large portion of the West, giving it a character for aridity that is unsurpassed elsewhere in this country. The rainfall that has been measured for years past in the Plateau region is the rainfall of the valley and the lowlands rather than that of the mountain. Naturally it varies with orography and latitude. In the shadow of the Sierra Nevada the annual fall is between 5 and 6 inches. In eastern Oregon, central and eastern Washington, it ranges from 8 to 12 inches and over. The mountain rainfall has not been accurately determined; doubtless it does not much exceed 25 inches, except over small areas. While the prevailing characteristic of this region, as a whole, is dryness there are occasional times when some portion of it, through one of those curious reversals of existing conditions, receives a fairly abundant rainfall. These marked exceptions to the general rule fortunately do not occur with sufficient frequency to cause any misapprehension as to the enduring nature of the climate. The valley of the Colorado in

southwestern Arizona, with an annual rainfall of less than 3 inches, represents the extreme conditions as to aridity in the United States. The precipitation in the lowlands is almost wholly confined to the winter months. About once in six years the bulk of the annual rainfall comes in a single month; thus in 1891 2.5 inches, 93 per cent of the annual amount, fell in February; in 1897, 2.8 inches, 67 per cent of the annual amount, fell in January; in 1901, 3 inches, 83 per cent of the annual amount, fell in February. The winter of 1904-5 gave the heaviest precipitation in the desert regions of the Southwest that has been recorded during the last thirty years. At Yuma, Ariz., in the three months of January, February, and March, 1905, almost 8 inches of rain fell, an amount 2 inches in excess of the greatest annual amount hitherto recorded. Abnormally heavy precipitation in the arid regions of the West and Southwest is due almost invariably to the persistence of cyclonic areas west of the Rocky Mountains. A moving cyclone in passing across the Plateau region induces southerly winds, which being warm and dry give up little moisture with the cooling that is caused when they are supplanted by westerly winds of lower temperature. This is in accord with the common observation that rapidly moving cyclones cause less precipitation than slowly moving ones; when, however, a cyclonic area is prevented from crossing the continental divide by the prevailing high pressure to the eastward, the circulation of the winds around the region of lowest pressure as it continues from day to day brings in more and more relatively cold air from northern and eastern regions; the ascending currents of the cyclone doubtless penetrate farther into the upper relatively cool layers than is possible under the conditions of a rapidly moving cyclone, and abundant precipitation results. The daily weather maps during the first half of February, 1905, afford an excellent illustration of the weather types favorable to precipitation in southern California, Arizona, and New Mexico.

Precipitation of the Rocky Mountain region.—Very little positive information is at hand concerning the distribution of precipitation throughout the length and breadth of the several ranges known collectively as the Rocky Mountains. As previously stated, the topographic features encountered in passing along the western slope of the Rocky Mountains from Montana to New Mexico are extremely varied. The extrusion of lateral ranges trending in every conceivable direction, the uplift here and there of plateau-like masses, together with the complex intermingling of mountain and valley, make it impossible to form an adequate idea of the general distribution of precipitation in this region. In general, the winter precipitation is almost wholly in the form of snow, and is heavier on the western than on the eastern slope, as might be expected. In spring and summer the precipitation is heavier in some portions of the range on the eastern than on the western side. In the southern portion of the chain, as in New Mexico, the heaviest precipitation of the year comes in July and August, and it appears to be equally heavy on all sides of the mountains. The maximum yearly amounts in the States through which the Rocky Mountains pass are as follows, beginning at the north: Idaho, 40 inches; at Murray, elevation about 3,000 feet. This station is situated in an east-west valley, with mountains on both sides rising 1,000 to 2,000 feet above the level of the valley. It is a short distance west of the Coeur D'Alene Mountains, whose crests are probably between 6,000 and 7,000 feet in altitude.

In Wyoming there is no well-defined region of maximum precipitation. Observations made in Yellowstone Park in the extreme northwest portion of the State—elevation 6,370 feet—give an annual mean of about 20 inches, and this is the greatest amount at any point in the State. District Forecaster Brandenburg, in speaking of the precipitation of Colorado, says:

The greatest annual precipitation occurs in the northern part of Gunnison County, at an elevation above 10,000 feet. Between 20 and 25 inches is the average for the western slope of the continental divide in the north central counties over the greater portion of the San Juan range and locally in the south central counties in the vicinity of Spanish Peaks. Amounts ranging between 15 and 20 inches occur on the average in the northern half of the State for some distance west of the mountains, while on the eastern slope these amounts occur in a long, narrow belt stretching north and south and whose eastern limits are the foothills. * * * Less than 10 inches is the average in the valleys along the western border, thence increasing somewhat up the narrow valley of the Gunnison. The least precipitation, between 6 and 8 inches, occurs in the central part of San Luis Park.

Precipitation east of the Rocky Mountains.—East of the Rocky Mountains the topographical features are comparatively simple. The rainfall distribution is therefore controlled almost

wholly by the frequency and movement in latitude of cyclonic storms. To this general statement a single exception must be made, viz, that the heavy rainfall of northwestern Georgia and of the western portions of the Carolinas is due in considerable part to the mountain masses in those States, as hereinbefore mentioned. The greatest annual precipitation in the United States east of the Sierra Nevada and Cascade ranges—70 inches—is found over a small area in the States above-named. A second area of comparatively heavy rainfall—60 to 70 inches—is found in southeastern Louisiana and extreme southwestern Alabama. From these two centers of heavy rain the fall diminishes slowly northward and westward. The isohyetal (line of equal precipitation) of 30 inches enters the United States in northern Michigan, skirts the southern shore of Lake Superior, moves thence southwestward to eastern Kansas, thence due south to the Texas coast in longitude 97° west from Greenwich. The isohyetal of 20 inches enters the United States in the valley of the Red River of the North in west longitude 97° ; it passes thence a little west of south to western Kansas in the neighborhood of the one hundred and first meridian, which it closely follows southward to the Rio Grande Valley. From the one hundred and first meridian westward to the Rocky Mountains the average annual precipitation ranges generally from 10 to 15 inches. In western Kansas (Dodge City) the precipitation of the driest year on record was 9.9 inches, the wettest year, 33.7 inches. While these figures are fairly representative of the extremes of precipitation experienced along and near the one hundred and first meridian, there is a narrow strip of somewhat greater aridity between the eastern foothills of the Rocky Mountains and the western boundaries of Kansas, Nebraska, and the Dakotas. This region of minimum precipitation finds its fullest development in eastern Colorado about the one hundred and third meridian, at which point the average annual fall does not greatly exceed 12 inches, and the greatest fall in any year rarely equals or exceeds 20 inches.

The rainfall tables for the several States and Territories show the amount of rainfall for the wettest and driest years, respectively.

The distribution of precipitation throughout the year is an important climatological factor, since it enables one to distinguish between the rains which are serviceable to agriculture and those which fall after the crops have been gathered.

In a previous publication, Bulletin D, "Rainfall of the United States," the author has recognized the following-named rainfall types in the United States:

Pacific, sub-Pacific, Arizona, Northern Rocky Mountain, and Eastern Foothills, Plains, Gulf, Southern Appalachian and Tennessee, South Atlantic, Middle Atlantic and New England, Lake Region and Ohio Valley.

Pacific type.—This type is found in all of the territory west of the Cascade and Sierra Nevada ranges, and also obtains in a fringe of country to the eastward of the mountain summits. It is represented by the profiles of Olympia, Wash.; San Francisco, and San Diego, Cal. (Plate XXVII.) The heavy black vertical lines represent the precipitation of each month expressed as a percentage of the annual fall.

The distinguishing characteristic of the Pacific type is a wet season, extending from October to March, and a practically rainless summer, except in northern California and parts of Oregon and Washington. About half of the yearly precipitation comes in the months of December, January, and February, the remaining half being distributed throughout the seven months—September, October, November, March, April, May, and June.

Sub-Pacific.—The term "sub-Pacific" has been given to that type of rainfall which obtains over eastern Washington, Idaho, Nevada, and Utah. The influences that control the precipitation of this region are much similar to those which prevail west of the Sierra Nevada and Cascade ranges. There is not, however, as in the Pacific type, a steady diminution of the winter precipitation with the approach of spring, but rather an increase which culminates in the late spring months. (See the profile of Spokane.) This fact is of very great importance to agricultural interests, whether the natural rainfall is sufficient for the growth and maturity of staple crops or not. In the latter case the rain comes at a time when most needed for irrigation. Salt Lake City has been placed within the sub-Pacific group, although its profile is not similar in all respects to those of the remaining stations. The differences are probably due to the influence of the lake.

Arizona.—The Arizona type, so called because it is more fully developed in that Territory than elsewhere, prevails over Arizona, New Mexico, and a small portion of southern Utah and Nevada. This type, of which Prescott, Ariz., and Fort Wingate, N. Mex., are examples, differs from all others in the fact that about 35 per cent of the rain falls in July and August. May and June are generally the months of least rainfall. The summer rains are essentially a feature of the mountain and plateau systems of both Territories, and are believed to be due largely to local convection induced by excessive insolation on the barren, rocky surface of the mountain sides and summits. The winter rains are due to migratory areas of low pressure pertaining to the general system of storm movement. The character of the winter rains, whether light or heavy, depends largely on the frequency of atmospheric disturbances and especially their movement in latitude.

Types of Monthly Distribution of Precipitation in the United States.

PLATE XXVII. Rainfall Distribution in the U. S. (Percentage of fall in each month represented by heavy vertical lines.)



1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

The Northern Rocky Mountain and Eastern foothills.—A type closely allied to that of the Plains to the eastward. The Rocky Mountains form a dividing line between diametrically opposite rainfall types. West of the mountains, except in Arizona and New Mexico, the bulk of rain falls in the colder months of the year, but on crossing the range, the rainy season is transferred to the warmer months. In the Foothills region it occurs in April and May; in Montana, in May and June. On the Plains proper and eastward to Michigan and Indiana, it falls in May, June, and July, while on the South Atlantic and Gulf coasts it occurs in August and September, with but few exceptions.

The rainfall of the Eastern Foothills region is not abundant, but what there is comes at the most opportune time of the year. This type is represented by the profiles of Denver and Helena.

The Plains.—The Plains type is a very important one, covering as it does the great wheat and corn region of the interior valleys. It embraces the greater part of the Dakotas, all of Minnesota and Wisconsin, part of Michigan and Illinois, all of Iowa, Nebraska, and Kansas, and the greater part of Missouri. This extensive region is characterized by a scant winter precipitation over the more northern States and moderately heavy rains during the growing season.

The profiles for Bismarck, N. Dak.; St. Paul, Minn.; Omaha, Nebr.; Lawrence, Kans., and Miami, Mo., illustrate the general features of the Plains type. The winter precipitation of the group decreases with increase of latitude.

The rain of the Plains comes largely in the form of summer thundershowers in connection with migratory areas of low pressure that pass across the country.

Gulf.—The Gulf type is more complex than any of those hereinbefore considered. The distribution throughout the year is also more uniform, comparatively few months receiving less than 8½ per cent of the yearly fall. On the west Gulf the rainfall of June, August, and September is heavier than at other seasons of the year. The maximum of the year on the middle coast as in Alabama, occurs in March; on the Florida coast in August and September.

Southern Appalachian and Tennessee.—This type has its chief maximum in the late winter and spring, and its chief minimum in October. It prevails in northern Mississippi, Tennessee, western North Carolina, extreme northern Georgia, and northeastern Alabama.

South Atlantic.—Includes the South Atlantic Coast from Virginia southward to Florida. The time of maximum rain in this region is deferred until the months of July, August, and September—the season of subtropical rains in Florida and on the Gulf Coast.

Middle Atlantic and New England.—The distribution of rain in this region is more uniform than in any other part of the country. The range between months of greatest and least rainfall is very small and of but little practical importance.

Lake region and Ohio Valley.—The distribution in the upper Lake region approaches closely to that of the Plains, with the exception of a second maximum of rain in September. The rainfall of the Ohio Valley differs chiefly from that of the Plains in the greater amount that falls in the winter. This is to be expected, since the atmospheric disturbances that originate in the Gulf region and Texas generally pass directly over the valley, giving copious rains in front and on the south side of the storm's path.

DROUGHT.

A definitive statement as to what constitutes drought is not easily given. It is obvious that it can not be determined by deficiency in rainfall alone, since the effect of the shortage in rainfall depends in great measure upon the condition of the soil at the beginning of the period of drought whether saturated with moisture or comparatively dry. Nor is it possible to measure the intensity of drought in terms of the departure of rainfall from the normal, since a deficiency of 50 per cent in a region of abundant rainfall is not so serious as the same deficit in a region where the average precipitation is barely sufficient for the needs of staple crops. The texture of the soil and other physical considerations which determine its ability to store water under conditions of least possible loss by evaporation are also important factors in determining the effect of a marked deficiency in rainfall.

More or less droughty conditions prevail at irregular intervals in all parts of the country. In the interior of the continent, far removed from the original sources of moisture, drought occurs more frequently than in eastern and southern districts; rarely, however, does it become general in all parts of the country. The greatest drought this country has experienced in the last 100 years, both as to intensity and extent of territory covered, culminated in the middle Mississippi and Missouri valleys in 1894, and in the Lake region and Atlantic coast districts in 1895. The drought of 1894 was the culmination of a period of deficient precipitation and high temperatures that began during the early summer of 1893. The subsoil from which the surface soil, by capillarity draws a portion of its moisture, had become appreciably desiccated and the way was open to a disastrous drought should the spring and summer rains fail. The rains of April were generally deficient in almost all parts of the country, except the northern Pacific coast, the upper Missouri Valley, and the upper Mississippi Valley, although the deficiency east of the Mississippi was not especially marked, except along the South Atlantic coast. In May the greatest deficiency in precipitation, 3 inches or more, occurred in the

States of South Dakota, Nebraska, Kansas, Iowa, Illinois, and Missouri. In June, July, and August the drought continued unabated in these States and extended into the upper Mississippi and Ohio valleys, the Lake region, and portions of the New England and Middle Atlantic States. The months of July and August were exceptionally dry in the Ohio Valley, the Lake region, the Missouri Valley, and the middle and upper portions of the Mississippi Valley. Over this great region less than 2 inches of rain, on the average, fell in the two months. In Iowa the average precipitation for July was 0.6 of an inch, 3.7 inches below the normal; in August, 1.6 inches, 2 inches below normal. The rainfall of September was not far from normal in the drought-stricken region of the Middle West, but continued below normal in a number of other districts. The shortage in rainfall during 1895 was almost as great and as widespread as in the previous year, but the region of greatest intensity was shifted from the middle Mississippi Valley, eastward to the Lake region and upper Ohio Valley.

Since the drought of these two years will probably become historic, a record of the departure of the annual precipitation from the normal is here given for future reference and comparison:

PRECIPITATION DEPARTURES IN THE DROUGHT YEARS 1894 AND 1895.

District.	Departure.		District.	Departure.	
	1894.	1895.		1894.	1895.
	Inches.	Inches.		Inches.	Inches.
New England.....	- 8.1	- 5.3	Missouri Valley.....	- 8.8	-2.9
Middle Atlantic States.....	- 5.3	- 9.1	Northern slope.....	- 1.4	-0.4
South Atlantic States.....	- 4.2	- 3.7	Middle slope.....	+ 0.4	-1.6
East Gulf States.....	- 9.0	- 8.6	Southern slope.....	- 3.7	+7.2
West Gulf States.....	- 6.8	- 6.7	Southern plateau.....	- 3.9	+0.4
Ohio Valley and Tennessee.....	-11.0	-11.0	Middle plateau.....	+ 0.2	-2.6
Lower Lake region.....	- 4.5	5.8	Northern plateau.....	+ 0.9	-4.5
Upper Lake region.....	- 2.0	7.1	North Pacific.....	+11.7	-4.1
North Dakota.....	- 0.5	- 1.1	Middle Pacific.....	+ 1.8	-5.6
Upper Mississippi Valley.....	-12.0	- 7.8	South Pacific.....	- 4.6	-4.4

Notwithstanding the widespread deficiency in annual precipitation, the total crop productions in the United States for both 1894 and 1895 did not fall greatly below a normal year, except that the corn crop for 1894 and the hay crop for 1895 were both short crops. The average yield per acre for corn in 1894 was 19.4 bushels, as against an average of 23.5 bushels for ten years, 1892 to 1901. The low yield was, however, offset by an increased price.

Other severe droughts were those of 1874 in Kansas, Nebraska, Iowa, Missouri, Illinois, Indiana, and in a less marked degree in the middle and lower Mississippi valleys. The most pronounced case of long-continued drought was in eastern Kansas, where for eighty days only a little over 2 inches of rain fell. At Leavenworth, Kans., from June 15 to July 8, a period of twenty-four days, practically no rain fell.

In 1876 severe drought prevailed in New England, the Middle Atlantic States, the Ohio Valley, and lower Lake region. The drought also prevailed quite generally south of the Ohio and east of the Mississippi.

The next serious drought was in 1881. It affected practically the whole of the country east of the Mississippi River and lasted from July to September. At Indianapolis, Ind., from June 22 to August 30, a period of seventy days, only 1½ inches of rain fell. At the same place, from May 15 to June 4, a period of twenty-one days, less than half an inch fell. At Pittsburg, Pa., from May 7 to May 29, a period of twenty-three days, 0.6 of an inch fell. From June 18 to July 15, a period of twenty-eight days, 1 inch fell. From August 1 to September 25, a period of fifty-six days, 1½ inches fell. The most striking characteristic of this drought was its duration and the attendant high temperatures. Vegetation and the staple crops were seriously damaged, and in the later stages of the drought there was a scarcity of water for domestic use and for manufacturing purposes. In many places scores of shops and factories were obliged to shut down for lack of water.

In 1886 severe drought again prevailed in Kansas, Nebraska, the Dakotas, Iowa, Minnesota, and western Wisconsin. At Iowa City, Iowa, from May 13 to the end of July, a period of eighty-three days, 0.95 of an inch of rain fell, being scarcely 1 per cent of the normal.

The following year—1887—was also characterized by a severe and prolonged drought over the Ohio Valley, Michigan, Indiana, Illinois, Missouri, Iowa, Nebraska, Kansas, Minnesota, Louisiana, Mississippi, Alabama, and portions of the Middle Atlantic States.

The drought years of 1893 and 1894 have already been described.

Drought prior to 1871.—A fairly complete record of droughts in this country from its early settlement until about 1850 can not be had by reason of lack of rainfall observations or other documentary evidence. Previous to 1850 a few scattered observations of rainfall are available for Atlantic coast districts, but the great interior is not represented except at a very few widely separated points. In the Mississippi Valley rainfall observations were made at two places, viz, St. Louis, Mo., and Fort Snelling, Minn., as early as 1837, so that it may be said the record of drought really begins at these two points in that year. The drought years previous to 1871 for which more or less definite information is available are 1854, 1856–57, 1860, 1863–64, 1870.

The drought of 1854 was most severe in Iowa, Kansas, Missouri, Arkansas, and Indian Territory. It extended eastward into the Ohio Valley and the Middle Atlantic States, but was not especially severe in those districts. This was a drought of midsummer and autumn, although it continued in a modified form throughout the winter and up to May, 1855. It was followed by a drought of rather small area that occupied Ohio, Indiana, and some parts of Illinois in 1856. The latter was a spring drought, followed by light summer rains and a dry autumn. The following year, 1857, was dry in portions of Iowa and Missouri. The drought of 1860 was the most severe yet recorded. It was characterized by a very dry spring, extending well into May, and covered the present States of Kansas, Missouri, Iowa, Minnesota, Wisconsin, and Indiana. In Missouri April and May were very dry, but in some portions of the State enough rain fell in June to redeem the crops. In other portions of the State the drought continued throughout the summer. At St. Louis the amount of rain for the three spring months was only 5.5 inches, less than 50 per cent of the normal. In Kansas both April and May were almost devoid of rain. The total fall for April in the eastern part of the State was probably less than one-quarter of an inch, while that of May did not exceed an inch. Good rains fell in June, and showers fell at intervals throughout July and August. In Minnesota and Wisconsin April and May were both dry months, the rainfall in the southern parts of both States being not more than 2 inches for both months.

The droughts of 1863–64 were confined to eastern Iowa, southern Minnesota, southern Wisconsin, and portions of Missouri and Kansas. While they were more or less local summer droughts, yet they caused the lowest water hitherto recorded in the Mississippi River from Dubuque to Burlington. In Wisconsin practically no rain fell in June and August, 1864. The drought of 1870 was also more or less local. In southern Ohio the rainfall from August 1 to September 30 was about 1½ inches. In Wisconsin the rainfall at Milwaukee for April was half an inch; May, six-tenths of an inch; June, 2½ inches. Dry weather also prevailed in Missouri.

It is noteworthy that the dates of extreme low water in the Mississippi River generally fall in quite recent years. This fact confirms the belief that the changes in the earth's surface which have been wrought through human agencies in the last hundred years have resulted not in diminishing the precipitation, but in quickening its flow into the rivers and small streams, thereby diminishing the reserve that was formerly held in forested areas and marshy lands and gradually fed into the streams. At St. Paul extreme low water occurred in March, 1896, almost a year after the drought of 1895; at La Crosse, Wis., it occurred in August, 1877, and this is the only point at which the records of the sixties and seventies have not been surpassed in recent years. Extreme low water occurred at Davenport in June, 1890; at Keokuk in December, 1903; at St. Louis in January, 1900; at Memphis on November 9, 1895, and at Vicksburg on November 13, 1895. Both of the two last-named occurred at the close of the great drought of 1894–95.

In order to gain some idea of the frequency of drought and its geographical distribution in the United States the records of daily precipitation at about 20 stations east of the one hundred and second meridian were carefully examined. A drought was considered to exist whenever the rainfall for a period of twenty-one days or more was 30 per cent or less of the normal for the season. More than 1,000 such periods were found, being an average of 32 per annum, or nearly $1\frac{1}{2}$ per station. A summary of the results by years appears in the table below:

PERIODS OF DEFICIENT RAINFALL IN THE UNITED STATES, 1871-1903, AT TWENTY SELECTED STATIONS EAST OF THE ROCKY MOUNTAINS.

Year.	Cases.	Precipitation during two weeks previous to drought.			Average duration of drought (days).	Precipitation during drought.			Year.	Cases.	Precipitation during two weeks previous to drought.			Average duration of drought (days).	Precipitation during drought.		
		Amount.	Normal.	Percentage.		Amount.	Normal.	Percentage.			Amount.	Normal.	Percentage.		Amount.	Normal.	Percentage.
		In.	In.			In.	In.				In.	In.			In.	In.	
1871.....	22	2.8	1.7	165	35	0.8	4.0	20	1888.....	36	3.3	1.7	194	32	0.7	3.5	20
1872.....	22	3.2	1.8	178	39	0.9	4.3	21	1889.....	35	2.8	1.7	165	43	1.0	4.6	22
1873.....	22	2.9	1.8	161	33	0.9	4.2	21	1890.....	26	2.7	1.8	150	34	0.9	4.4	20
1874.....	32	3.7	1.8	206	40	0.9	4.7	19	1891.....	37	2.6	1.8	144	40	0.9	4.4	20
1875.....	34	3.5	1.8	194	36	1.0	4.4	23	1892.....	35	2.8	1.8	156	38	0.9	4.3	21
1876.....	33	3.7	1.7	218	33	0.7	3.7	19	1893.....	41	2.6	1.7	153	42	1.0	4.5	22
1877.....	32	3.1	1.7	182	34	0.7	3.7	19	1894.....	46	2.6	1.6	162	42	0.9	4.8	19
1878.....	25	3.2	1.8	178	29	0.8	3.4	24	1895.....	39	2.7	1.6	169	47	1.0	5.1	20
1879.....	33	3.2	1.7	188	42	0.9	4.7	19	1896.....	36	2.8	1.7	165	40	1.0	4.7	21
1880.....	29	3.2	1.7	188	32	0.9	3.8	24	1897.....	40	2.9	1.8	161	50	1.3	5.8	22
1881.....	35	3.0	1.9	158	37	0.9	4.5	20	1898.....	30	3.0	1.8	167	36	0.9	4.3	21
1882.....	23	2.8	1.6	175	37	0.8	4.0	20	1899.....	33	2.8	1.7	165	45	1.1	4.9	22
1883.....	22	3.3	1.8	183	46	1.2	5.5	22	1900.....	33	2.9	1.7	170	37	0.9	4.5	20
1884.....	25	3.5	1.8	194	40	0.9	4.5	20	1901.....	37	3.1	1.7	182	38	0.9	4.4	20
1885.....	25	2.6	1.7	153	33	0.7	3.5	20	1902.....	36	3.3	1.7	195	33	0.7	4.1	17
1886.....	41	2.9	1.8	161	41	0.9	4.6	20	1903.....	23	3.3	1.6	206	38	0.8	4.5	18
1887.....	38	2.8	1.8	156	37	0.9	4.5	20									

From a consideration of the facts summarized in the above table it appears, first of all, that scarcely a year passes, even in the more humid regions of the United States, without a failure of the rains in accordance with the definition of drought given above. As illustrating more fully this particular phase of the subject, the complete record for Washington, D. C., average annual precipitation 43.1 inches, is reproduced in the table below:

PERIODS OF DEFICIENT RAINFALL AT WASHINGTON, D. C., 1871-1903.

Year.	Precipitation during two weeks previous to drought.			Duration of drought.	Number of days.	Precipitation during drought.		
	Amount.	Normal.	Percentage.			Amount.	Normal.	Percentage.
	Inches.	Inches.				Inches.	Inches.	
1871.....	3.0	1.6	188	From May 11 to May 31.....	21	0.1	1.4	7
	1.9	2.1	91	From Aug. 1 to Aug. 23.....	23	0.7	3.0	23
1872.....	2.0	1.8	111	From June 17 to July 31.....	45	1.3	6.5	20
1873.....	4.8	1.7	282	From May 12 to June 27.....	47	1.4	6.2	23
	1.4	1.8	78	From July 2 to July 26.....	25	0.8	3.7	22
1874.....	3.0	1.8	167	From June 13 to July 9.....	27	0.9	3.8	24
	2.0	2.0	100	From July 12 to Aug. 22.....	42	1.0	5.9	17
	5.8	1.7	341	From Sept. 20 to Oct. 31.....	32	0.3	3.2	9
1875.....	1.4	1.6	88	From May 5 to June 4.....	31	0.6	4.0	15
	1.5	1.8	83	From June 8 to July 14.....	37	1.4	5.2	27
	1.9	1.8	106	From Sept. 20 to Oct. 15.....	26	0.6	2.8	21
1876.....	1.6	1.9	84	From June 29 to July 29.....	31	1.0	4.6	22
	3.5	1.6	219	From Oct. 2 to Oct. 22.....	21	0.5	2.1	24

PERIODS OF DEFICIENT RAINFALL AT WASHINGTON, D. C., 1871-1903—Continued

Year.	Precipitation during two weeks previous to drought.			Duration of drought.	Number of days.	Precipitation during drought		
	Amount.	Normal.	Percentage.			Amount.	Normal.	Percentage.
	Inches.	Inches.				Inches.	Inches.	
1877.....	2.2	1.9	116	From Aug. 14 to Sept. 5.....	23	0.6	2.9	21
1878.....	3.9	1.8	217	From Sept. 14 to Oct. 17.....	34	0.6	3.7	16
1879.....	3.2	1.8	178	From June 12 to July 24.....	43	1.1	6.2	18
	6.7	1.8	372	From Aug. 27 to Oct. 20.....	55	1.8	6.3	29
1880.....	2.9	1.8	161	From June 17 to July 19.....	33	1.0	4.9	21
	3.4	1.8	189	From Sept. 10 to Oct. 3.....	24	0.5	2.8	18
1881.....	3.4	2.0	170	From July 9 to Sept. 9.....	63	2.0	8.6	23
	2.2	1.8	122	From Sept. 17 to Oct. 23.....	37	1.0	4.0	25
1882.....	3.6	1.8	200	From June 2 to June 30.....	29	1.1	3.9	28
	2.7	2.0	135	From Aug. 3 to Aug. 25.....	23	0.8	3.0	27
	4.4	1.7	250	From Sept. 28 to Oct. 31.....	34	0.5	3.4	15
1883.....	3.5	2.1	167	From July 25 to Aug. 14.....	21	0.7	2.9	24
1884.....	4.1	2.1	195	From Aug. 1 to Oct. 31.....	92	2.9	10.8	27
1885.....	3.7	1.7	218	From Sept. 6 to Oct. 1.....	26	0.5	3.2	18
1886.....	6.0	2.0	300	From Aug. 2 to Aug. 29.....	28	0.3	3.6	6
	1.9	1.8	106	From Sept. 10 to Oct. 25.....	46	1.2	5.0	24
1887.....	1.7	1.9	89	From Aug. 13 to Sept. 10.....	29	0.7	3.6	19
	1.2	1.7	71	From Sept. 29 to Oct. 19.....	21	0.4	2.1	19
1888.....	2.8	1.8	156	From June 1 to June 22.....	22	0.8	2.9	28
	3.9	2.1	186	From July 14 to Aug. 7.....	25	0.9	3.6	25
	5.8	1.8	322	From Sept. 19 to Oct. 18.....	30	0.7	3.2	22
1889.....	6.4	2.0	320	From Aug. 10 to Sept. 11.....	33	0.9	4.2	21
1890.....	1.9	1.8	106	From June 24 to July 23.....	30	0.9	4.0	22
1891.....	3.0	2.1	143	From July 30 to Aug. 20.....	22	0.7	3.1	23
	5.2	1.8	289	From Sept. 7 to Oct. 18.....	42	0.8	4.6	17
1892.....	3.4	1.8	189	From May 28 to June 26.....	30	1.0	4.0	25
	2.9	2.1	133	From Aug. 1 to Sept. 12.....	33	1.0	5.5	18
	3.4	1.7	200	From Sept. 24 to Oct. 21.....	38	0.3	3.9	8
1893.....	2.3	1.8	128	From June 3 to Aug. 3.....	62	2.5	8.8	28
1894.....	2.2	1.8	122	From May 24 to July 21.....	59	1.8	8.2	22
	2.4	2.0	120	From Aug. 5 to Sept. 16.....	43	1.5	5.5	27
1895.....	2.2	2.0	110	From July 29 to Oct. 30.....	94	3.1	11.1	28
1896.....	1.2	1.8	67	From June 15 to July 5.....	21	0.8	2.9	28
	2.3	2.1	110	From July 23 to Aug. 12.....	21	0.7	2.9	24
	2.1	1.7	124	From Sept. 6 to Oct. 31.....	56	1.8	6.1	30
1897.....	2.3	1.9	121	From Aug. 12 to Sept. 22.....	42	1.3	5.3	25
1898.....	3.3	1.8	183	From May 17 to July 17.....	62	2.1	8.5	25
	8.3	1.9	437	From Aug. 14 to Oct. 17.....	65	1.9	7.6	25
1899.....	1.6	1.8	89	From June 13 to July 4.....	22	0.9	3.0	30
	3.2	1.9	168	From Aug. 16 to Sept. 10.....	26	0.6	3.3	18
1900.....	7.0	1.8	389	From June 18 to Aug. 19.....	63	2.1	8.9	24
	1.7	1.8	94	From Aug. 25 to Sept. 14.....	21	0.5	2.7	19
1901.....	4.5	2.1	214	From July 15 to Aug. 5.....	22	0.7	3.2	22
	2.4	1.8	133	From Aug. 25 to Sept. 27.....	34	0.9	4.2	21
	1.2	1.6	75	From Oct. 4 to Oct. 31.....	28	0.6	2.8	21
1902.....	2.4	1.8	133	From May 26 to June 15.....	21	0.7	2.7	26
	3.0	2.1	143	From June 27 to July 17.....	21	0.8	3.1	26
	2.1	2.1	100	From Aug. 7 to Sept. 2.....	27	0.6	3.4	18
1903.....	2.1	1.7	124	From Aug. 31 to Oct. 6.....	37	1.2	4.4	27

During the thirty-three years embraced within the table a total of 62 cases of deficient rainfall occurred, almost two a year, and no single year passed without at least a single case occurring.

Analyzing the facts contained in the Washington table it is found that there were four cases when the rainfall for an average period of thirty days was less than 10 per cent of the normal. It might be supposed, since these are the lowest percentages in the table, that they represent extreme drought conditions; further examination, however, reveals the fact that the average rainfall for the two weeks immediately preceding the drought was more than double the normal (257 per cent on the average).

The condition of vegetation at the close of the droughty periods is not on record in each case, but enough is known to justify the statement that the damage to the staple crops was not serious in even a majority of cases. It is therefore concluded that for Washington a deficiency in rainfall equivalent to 90 per cent of the normal may be withstood for a period of thirty days, provided the soil is well saturated with moisture at the beginning of the period.

In the 1,066 cases of deficient rainfall upon which the table on page 54 is based, the shortage in 158 cases (15 per cent of the whole number) was equal on the average to 94 per cent of the normal for an average period of thirty-one days. The average rainfall for the two weeks immediately preceding the droughty periods for the same cases was 182 per cent of the normal. The rainfall preceding droughty periods varied largely in individual cases—the lowest noted was 45 per cent, the greatest 725 per cent—but the one fact which stands out most prominently is that *droughty periods are preceded in the majority of cases by a single heavy rain or by several days of light to moderate rains.* This appears to be true for both the semiarid regions of the West and the more humid regions of the East and South.

The depth of rainfall in the two weeks immediately preceding droughty periods—that is, whether 200 per cent or 400 per cent of the normal—does not appear to bear any relation to the length or intensity of the succeeding drought. In 50 cases in which the rainfall of the preceding two weeks was on the average 405 per cent of the normal, the resulting droughts averaged thirty-five days in length and the rainfall was 19 per cent of the normal. These figures differ but slightly from the general mean for all cases.

One of the most remarkable examples of great contrast in the seasonal rainfall occurred at Vicksburg in 1874. In the two weeks prior to April 25, 15 inches of rain fell; in the thirty-eight days following that date, 0.5 inch fell, being 8 per cent of the normal. In the two weeks prior to July 16, 7.4 inches fell; in the following sixty-nine days, 0.8 inch fell, being 9 per cent of the normal. From September 22 to 26, 5.9 inches fell; in the following thirty-six days no rain fell.

The longest period of deficient rainfall embraced in the tables was one hundred and forty days—from June 14 to October 31—when the rainfall at Shreveport, La., was but 22 per cent of the normal.

The distribution of periods of deficient rainfall by months is as follows (in percentages):

	Per cent.
Number that began before April 15.....	2
Number that began between April 16 and May 15.....	10
Number that began between May 16 and June 15.....	13
Number that began between June 16 and July 15.....	17
Number that began between July 16 and August 15.....	20
Number that began after August 15.....	38

In concluding the subject it seems proper to add that in general climatological statistics alone fail to give a sufficient accurate conception either of the duration or intensity of drought. Supplementary observations upon the condition of vegetation in each locality are especially needed.

HOT WINDS—A SPECIAL FEATURE OF DROUGHTS.

During the last twenty-five years public attention has been drawn to a special class of winds, popularly known as "the hot winds of the plains." These winds reach their fullest development in the level or gently undulating country between the eastern foothills of the Rocky Mountains on the west and the Mississippi River on the east. They are best known in the western or driest portion of this region, although they may occur in a modified degree in the States of Ohio, Indiana, Illinois, Michigan, and Wisconsin. The two characteristics of these winds which stand out most prominently are unusual heat and dryness. The shade temperatures range from 100° to 110°, and the relative humidity sinks to about 20 per cent, possibly less in extreme cases. Extreme heat and dryness and brisk wind movement are all factors that promote intense evaporation, and the resulting rate of evaporation is consequently very high. Another feature of these winds is their diurnal character. They almost invariably set in in the early forenoon and continue till about 6 p. m., when the extreme heat is

abated, although fresh to brisk winds may continue during the night. The nights are cool in the regions where the relative humidity is low, although the day temperatures may be very properly compared to the blast from an open furnace.

The withering effect of these winds on vegetation is largely dependent upon the amount of moisture in the soil. Cases have occurred where vegetation has been burned while the ground is still moist, but in general serious damage is not done so long as the plant can draw moisture from the ground.

The general type of pressure distribution under which these winds occur is shown in Plate VIII. In general, pressure is high, 30 inches or over, in southeastern districts and low over the Dakotas, diminishing to the northward. The normal wind direction over the Great Plains, under a distribution of pressure such as that described above, is southwest, its force depending generally upon the steepness of the barometric gradient. The absence of timber and the open character of the country tends to reduce surface friction to a minimum, thus increasing the velocity of the winds in all seasons above what they would be in a broken timbered country. Here it may be proper to say that in recent years considerable tree planting has been done with a view of creating "wind breaks" and thus increasing the resistant power of the soil to the desiccating winds of summer and affording protection from the cold blasts of winter. The planting of trees should be encouraged in all possible ways. (See p. 74.)

In summer, as has been previously stated, the path of cyclones is eastward along the northern boundary. Scarcely a season passes that these moving areas of low pressure do not cause brisk to high southwest winds over the Great Plains, the middle and upper portions of the Mississippi Valley, and the western Lake region. These winds are often improperly called hot winds, although they may not seriously affect vegetation or injure in any way the staple crops. It should be remembered that much of the evidence on which the prevalence of hot winds is based has been given by persons not naturally fitted to discriminate between the ordinary summer winds of moderately high temperatures and the very hot desiccating winds herein described. It is to this looseness of description as much as anything else that a true understanding of the hot winds was not sooner reached.

Hot winds of September 12, 1882.—A well-marked case of hot winds occurred over eastern Kansas on September 12, 1882. The table below gives the extremes of temperature and humidity and other data for the day previous and the two days subsequent to the prevalence of the hot winds. The weather in eastern Kansas previous to the occurrence of the hot winds of September 12 had been very dry. From August 6 to September 12, a period of thirty-eight days, less than half an inch of rain had fallen, and for the twelve days immediately preceding the date of the hot winds clear skies prevailed without rain. The barometric depression that was the immediate cause of the hot winds referred to first appeared in southeastern Montana on the evening of September 10. In the next forty-eight hours it advanced very slowly eastward, inducing southeast shifting to southwest winds over the lower Missouri Valley and the Plains States. The southeast winds coming from a more humid region were not unusually warm, but shortly after the shift of the winds to the southwest the temperature rose with great rapidity. The observer at Leavenworth, Kans., reported:

September 12, 1882.—At 1 p. m. a very hot and extremely dry wind set in from the southwest, feeling as a hot blast from a furnace. It caused the thermometer to rise rapidly, attaining a maximum of 101° at 4 p. m., and the humidity dropped suddenly to 17 per cent. This hot wind continued until sundown. It withered and almost burned vegetation and caused a total suspension of outdoor labor during the afternoon.

September 13.—Hot and dry south to southwest winds and clear weather, not a cloud being visible the entire day.

September 14.—Hot and dry south and southwest winds continued with clear weather, not a cloud appearing in the sky throughout the day.

Professor Snow, of Lawrence, Kans., reported:

The month was chiefly noted for the hot blast of the 12th, which was repeated with somewhat diminished intensity on the 13th, 14th, and 15th. During these simoons the air was excessively dry, the relative humidity sinking to 7 per cent on the afternoon of the 12th. The fierce, dry heat burned the foliage of the trees so that they crumbled to powder at the touch of the hand. The nights following these withering days were comparatively cool, the mercury sinking from 105° on the 12th to 65° on the morning of the 13th, and from 101.5° on the 13th to 66° on the morning of the 14th.

CLIMATIC DATA ILLUSTRATING HOT WINDS IN EASTERN KANSAS, SEPTEMBER 12, 1882.

Station and date.	Temperature.		Relative humidity.		Wind.		Rain.	State of weather.
	Maximum.	Minimum.	Maximum.	Minimum.	Prevailing direction.	Maximum velocity.		
Dodge City, Kans.:	°	°	Per cent.	Per cent.		m. p. h.	Inches.	
Sept. 11, 1882.....	99	56	48	14	W.	17	0	Clear.
Sept. 12, 1882.....	97	66	47	12	SW.	22	0	Do.
Sept. 13, 1882.....	96	61	48	15	S.	22	0	Do.
Sept. 14, 1882.....	93	60	66	11	SW.	30	0	Do.
North Platte, Nebr.:								
Sept. 11, 1882.....	90	51	68	27	S.	14	0	Do.
Sept. 12, 1882.....	89	51	66	18	NW.	20	0	Do.
Sept. 13, 1882.....	96	51	73	16	W.	17	0	Do.
Sept. 14, 1882.....	85	57	65	27	E.	20	0	Do.
Omaha, Nebr.:								
Sept. 11, 1882.....	80	64	90	51	SE.	12	0	Partly cloudy.
Sept. 12, 1882.....	84	61	74	58	SE.	12	0	Clear.
Sept. 13, 1882.....	91	64	87	33	S.	16	0	Do.
Sept. 14, 1882.....	89	65	63	25	E.	12	0	Do.
Leavenworth, Kans.:								
Sept. 11, 1882.....	81	65	78	37	SE.	14	0	Do.
Sept. 12, 1882.....	101	62	90	17	WSW.	20	0	Do.
Sept. 13, 1882.....	98	67	45	15	SW.	20	0	Do.
Sept. 14, 1882.....	98	71	50	14	SW.	22	0	Do.

Whether or not the frequency of hot winds is diminishing is an open question. It seems probable, however, that the effect of these winds on the staple crops is diminishing year by year, as deep plowing and other improved methods of farming become general.

The writer has personally experienced true hot winds in both Kansas and Texas. It is his belief that they are of local origin; that both the high temperatures and low humidities are the products of insolation under the cloudless skies of the western prairies, intensified by favorable local conditions as to temperature and moisture. The first step in the process is the failure of the rains and the continued evaporation of moisture from the soil until the latter becomes so dry that it acquires a high temperature very quickly; both air and soil being hot and dry the material is at hand to produce hot winds should the pressure distribution be favorable to set the superheated air in motion. Once in motion it will continue to move day and night so long as the pressure conditions remain unchanged. Although the wind may continue at night it is not a true hot wind, since the temperature sinks after sunset under the influence of terrestrial radiation. Hot winds are not infrequently observed in connection with weak secondary cyclones that are formed in the southern end of V-shaped depressions moving eastward along the northern boundary. The northern end of these depressions occasionally moves faster than the southern end, and, as a result, a weak cyclonic circulation obtains over the Great Plains. In such cases the hot winds may come from the north or northwest.

SNOWFALL.

The average depths of snowfall by months is given for more than 600 stations in climatic tables for the several States and Territories.

Snow falls in all parts of the United States except central and southern Florida and over the lowlands of southern California. Snow rarely falls on the immediate Pacific coast south of about latitude 42°. At San Francisco, Cal., there have been about a dozen occasions during the last thirty-three years upon which light snow fell, the heaviest fall being on February 5, 1887, when the average depth was between 5 and 6 inches. While snow is common in the mountains of southern California, it is unknown along the coast.

The snowfall on the Sierra Nevada and Cascade ranges is the greatest known in the United States. The average annual depth on the mountains is largely a matter of conjecture. Measurements made on the Sierra Nevada where the Central Pacific crosses the range give a mean

annual amount somewhat in excess of 30 feet. The snowfall on the western slope of the Rocky Mountains is considerably less. At the lower levels where observations have been made, in Idaho, Montana, and Wyoming, it ranges between 50 and 60 inches. In Colorado, according to Brandenburg, the average for the western slope of the Continental Divide is 220 inches. East of the Divide in Colorado the annual snowfall diminishes from about 45 inches in the northeastern portion of the State to about 20 inches in the southeastern portion of the State. On the western slope of the Coeur d'Alene and Bitter Root mountains in Idaho the snowfall is doubtless heavier than over the western slope of the Continental Divide in Colorado. The average annual depth of snowfall at Murray, Idaho, western slope of the Coeur d'Alene Mountains, is 161 inches. East of the Rocky Mountains the region of greatest snowfall, 100 inches and over, is found in northern Michigan, western Ontario, and the lower St. Lawrence Valley. As the winds over the Great Lakes in winter are mostly west to northwest, the snowfall on the leeward side of the lakes is much heavier than on the windward side. At Duluth, at the western extremity of Lake Superior, where the prevailing winds are from land areas, the average annual snowfall is 52 inches. On the southern shore of Lake Superior, about 170 miles eastward, as at Calumet, on the Keweenaw Peninsula, the average annual amount is 131 inches, an increase of about 80 inches by reason of the lake influence. From this central region of heavy snowfall in upper Michigan and the St. Lawrence Valley, the annual amount diminishes rapidly southward and westward. The line of 50 inches annual snowfall enters the United States on the Massachusetts coast, passes thence a little south of west to the upper Ohio Valley, thence northwestward to the southern end of Lake Huron, thence southwestward to northern Indiana, where it curves rapidly northwestward to Winnipeg, Manitoba. The line of 5 inches annual snowfall enters the United States over Albemarle Sound, North Carolina, and trends a little south of west to Atlanta, Ga., thence westward to the Panhandle of Texas, thence southwestward to El Paso, where it curves to the northwestward, passing off the Oregon coast in the neighborhood of north latitude 44°.

In addition to the monthly averages of snowfall the climatic tables for the several States and Territories show the greatest amount of snow that has fallen in any twenty-four consecutive hours at the respective stations. The greatest twenty-four hour snowfall in northeastern districts (between 2 and 3 feet) occurred in connection with the severe storm of March 12, 1888, commonly known as the March "blizzard." Elsewhere east of the Mississippi River the largest twenty-four hour amounts vary from 8 inches in the Ohio Valley to 18 and 20 inches along the lower lakes. In the southern States the greatest daily amounts range from 4 inches at San Antonio to 8 inches at New Orleans. Both of these amounts fell in connection with a snowstorm which was general throughout the South on February 14, 1895. Heavy snow fell in Georgia and the South Atlantic States in connection with the severe cold wave of February 12 and 13, 1899. Nearly 2 inches of snow fell at Jacksonville in connection with that storm. In the Mississippi Valley the greatest daily snowfall ranges from 5 inches at Vicksburg to 20 inches at St. Louis. In Iowa, Minnesota, the Dakotas, Kansas, and Nebraska the greatest twenty-four hour amounts range from 9 to 17 inches. In the Rocky Mountain region twenty-four hour snowfalls ranging from 8 to 24 inches have been recorded. Over the Plateau region and over the North Pacific coast the amounts vary from 10 to 20 inches. In Colorado and Wyoming the heaviest snow of the year generally falls in March or April. At Denver, Colo., on the 22d of April, 1885, 23 inches of snow fell.

Relative Humidity.

The humidity observations of the U. S. Weather Bureau from about 1886 to date form a homogeneous series so far as instruments and methods are concerned. In 1888, however, the time of taking the observations was changed and the number of observations was reduced from 3 to 2. In the absence of accurate information regarding the diurnal variation in the moisture of the air it has not been possible to combine the two series nor to utilize in this discussion any of the observations made prior to 1888. Table VIII contains a record of the monthly mean values for 8 a. m. and 8 p. m., seventy-fifth meridian time, for a number of selected stations.

In a general way the diurnal variation in the relative humidity is the reverse of the temperature, the maximum occurring about 5 a. m., at the time of lowest temperature, and the minimum in the afternoon about 3 o'clock. Dr. Oliver L. Fassig, section director, U. S. Weather Bureau, has computed a table of corrections^a for obtaining the true daily mean relative humidity from observations made at 8 a. m. and at 8 p. m., local time. Using the material in Doctor Fassig's report, the above-named table has been extended to include the following pairs of hours, viz., 7 a. m. and 7 p. m., 6 a. m. and 6 p. m., and 5 a. m. and 5 p. m., these being the hours of local mean time near which humidity observations are made in the central and western portions of the country.

CORRECTIONS TO OBTAIN THE TRUE DAILY MEAN RELATIVE HUMIDITY AT BALTIMORE.

[Expressed in percentages.]

	Janu- ary.	Febru- ary.	March.	April.	May.	June.	July.	Aug- ust.	Sep- tember.	Octo- ber.	No- vem- ber.	Dec- ember.	Annual.
8+8 2	-3.3	-3.1	-1.9	-1.9	-1.6	-0.6	-1.6	-1.9	-2.6	-4.0	-4.2	-3.0	-2.6
7+7 2	-2.5	-2.6	-2.4	-2.4	-1.6	-0.6	-1.6	-2.9	-4.1	-4.5	-3.7	-2.5	-3.1
6+6 2	-0.8	-0.6	-0.9	-1.4	-2.1	-0.6	-1.6	-1.9	-2.6	-3.0	-2.7	-3.0	-1.6
5+5 2	+0.2	+0.9	+0.1	-0.9	-1.6	-1.6	-1.1	-0.6	-0.6	-0.5	-0.7	-0.5	-1.1

Assuming that the diurnal variation of relative humidity is the same in all parts of the country as at Baltimore, it will be seen from the table of corrections that while the published mean values are too high in the eastern and central districts, they approach the true mean more closely over the Great Basin and on the Pacific coast.

The chief characteristics of the geographic distribution of relative humidity in the United States are as follows: (1) Along the coasts there is a belt of high humidity at all seasons, the percentage of saturation ranging from 75 to 80 per cent. (2) Inland from about the ninety-seventh meridian eastward to the Atlantic coast the amount varies between 70 and 75 per cent. (3) The dry region is in the Southwest, where the average annual value is not over 50 per cent. In this region is included Arizona, New Mexico, southwestern Colorado, and the greater portion of both Utah and Nevada. The mean annual relative humidity in the remaining portion of the elevated country comprised between the one hundredth meridian on the east and the Sierra Nevadas and Cascades on the west varies between 50 and 65 per cent.

In July, August, and September the mean values in the Southwest sink as low as 20 and 30 per cent, while along the Pacific coast districts they continue about 80 per cent the year round. In Atlantic coast districts and generally east of the Mississippi River the variation from month to month is not great. April is probably the driest month in the year.

^a Report on the Climate and Weather of Baltimore and Vicinity. The Johns Hopkins Press, Baltimore, 1905.

Fog.

The occurrence of fog is not always easily explained. The simplest case of fog formation is that which is produced when relatively warm moist air is drawn over a cold water surface. The North Atlantic in the vicinity of the Grand Banks is notoriously foggy, more so at some seasons of the year than at others. In this portion of the Atlantic two ocean currents of widely different temperatures come into close juxtaposition. The first of these is the Labrador current, composed of water flowing southward from the Arctic seas; the second is the Gulf Stream, whose northern limit approaches within several hundred miles of the southern Newfoundland coast. Both the waters of the Gulf Stream and the superincumbent air are warm as compared with the conditions in the regions dominated by the Labrador current, and there naturally results along the bounding surfaces of these two currents sharp contrasts both in air and water temperatures. Whenever, therefore, southerly winds from the Gulf Stream blow into the colder regions of the north the air is chilled and part of its moisture is condensed in the form of fog.

In the United States the greatest fog frequency will be found along the northern and middle portions of both the Atlantic and the Pacific coasts, the maximum fogginess along the Atlantic coast being found, as might be expected, along the coast of southeastern Maine and over the Atlantic off southeastern New England. On the Pacific coast the maximum fogginess appears to be along the California coast in the neighborhood of San Francisco Bay. The Pacific coast, as a whole, is much foggier than the Atlantic coast, the latter from Hatteras to Key West being quite free from fog. The reason of this is obvious, viz, because the winds on the Atlantic coast are mostly offshore and consequently carry decidedly less moisture than the westerly on-shore winds along the Pacific coast. The fogs of the Pacific coast are not an unmitigated nuisance, since they distribute considerable moisture to plants and trees during the dry season. In the interior of the United States, especially in the western half, fog is of rare occurrence, the average number of days a year with fog being less than ten. In the Lake region the number rises to fifteen or twenty per annum, while in eastern districts the general average runs from ten to fifteen, with isolated localities where local conditions are responsible for a much greater number.

The cooling of the air which is usually observed in connection with inland fogs may be caused in several ways, viz, (1) by the drift of warm moist air from lower to higher latitudes in connection with the slow movement of a cyclonic system. In this case the warm air is chilled by coming in contact with the colder ground. Conversely, fog may be produced by cold air coming in contact with the warmer ground surface. (2) By the indraft at certain seasons of the year of cool ocean winds into a barometric depression advancing from the westward. This is a very uncertain cause of fog, since much seems to depend upon the temperature gradient and the rate of movement of the depression. A very slow rate of movement with weak temperature gradients and light winds appears to be favorable to fog. Strong gradients and rapid air movements are conducive to rain rather than fog. (3) By the chilling of the air by nocturnal radiation. Valley and lowland fog is produced mostly in this way. The fog in this case disappears quickly under the influence of the rising sun. While the occurrence of fog is thus readily explained, there are occasions when it forms in apparently the most capricious manner; and on the other hand there are times when all of the known meteorological causes seem to conspire to produce fog, yet there is no fog. Ordinarily the humidity in a dense fog is high. In one hundred and eighteen days with dense fog observed by Dr. H. C. Frankenfield in Chicago, Ill., 1884-1893,

the humidity was 90 per cent or more in 75 per cent of the cases, 80 to 90 per cent in 13 per cent, and below 80 per cent in the remaining 12 per cent of cases. Dense fog was observed by Doctor Frankenfield on one occasion when the relative humidity was as low as 52 per cent, on another when it was 58 per cent. Both cases, however, occurred in autumn at a time when the air was extremely dry over a large area of surrounding country.

Although fog is generally associated with calms and light winds, it has been observed with fresh to brisk winds. In such cases it would seem to partake more of the nature of very low cloud than fog. At the Mount Weather (Va.) Observatory fog is frequently reported as moving from the southeast—that is, up the eastern slope of the mountain with brisk southeast winds. It is not altogether clear that this is a true fog.

The depth of fog sheets or banks varies from a few feet to half a mile or more. Prof. W. J. Hussey, in reporting upon the suitability of certain sites in southern California and Arizona for a solar observatory,^a states that the prevailing level of the fog in the Los Angeles region is higher than for the corresponding season in the neighborhood of San Francisco and that the height of the fog varies greatly on different days. Occasionally it will rest near the ground and not advance far from the sea. More frequently, however, the upper level has an elevation of from 3,000 to 4,000 feet, rarely exceeding the latter altitude.

The distribution of fog throughout the year is characterized by a summer maximum on the Pacific and New England coasts and a winter maximum in the middle and lower portions of the Mississippi Valley, the South Atlantic and Gulf coasts, and the interior of California. Along the Atlantic coast from New York to Hatteras the greatest fog frequency occurs in February and March. In the Lake region some stations show a maximum in April, while at others it is deferred until October. During the years 1898, 1899, 1900, and 1901 persistent effort was made by the Weather Bureau to determine the fog conditions over the Great Lakes from observations made by the vessel masters. As a result it was found that on Lake Superior the foggiest increased during the spring months, reaching a maximum in June and July, and that the greatest foggiest was to be found almost in mid-lake east of Keweenaw Point. On all of the lakes except Ontario the foggiest was less along the shore than at some distance lakeward. On Lakes Michigan and Huron the greatest frequency of fog during the season of navigation occurred in May and June, diminishing to a minimum in November.

Fog on the Great Lakes is generally observed in one or the other of two forms, viz, as a dense and unbroken sheet, or in the form of broken, low-lying fog with occasional banks of great density separated by intervals of clear weather. The first or blanket form occurs in connection with slow-moving cyclones from the west or southwest; the second or broken form is a fair-weather type and is probably caused by the diurnal changes in temperature.

In the upper Ohio Valley, portions of the Middle Atlantic States, and also in the Puget Sound region and the Willamette Valley the maximum fog frequency occurs in October. At this time of year, especially in eastern districts, fog is caused chiefly by nocturnal radiation in calm, clear weather.

^a Carnegie Institution year book, 1903, page 73.

Sunshine.

The average sunshine for the United States as a whole is above 50 per cent. The region of maximum sunshine is in the extreme southwest, where on the average for the year the sun shines at least 70 per cent of the time. The region of least sunshine is on the North Pacific coast, where the annual average is about 40 per cent. In winter the average sunshine on the North Pacific coast States and for some distance eastward over Idaho and western Montana sinks to about 30 per cent. There is a second region of minimum sunshine in the eastern part of the country, especially along the lower Lakes, the Ohio Valley, and northern New England. Here, too, the percentage sinks as low as 30 per cent and in a few cases to 20 per cent.

In Table XI will be found a table of sunshine as derived from the records of automatically recording instruments at a number of selected stations. The installation of sunshine recorders was begun at a few stations of the Weather Bureau in the early nineties, and the number of stations has been added to year by year, so that now practically all stations are provided with them. This explanation is made in view of the fact that the records in Table XI are for varying periods of time.

Winds.

The prevailing winds of the world have been classified in several different ways. One of the earliest attempts divided them into three groups, viz., the permanent winds, of which the trades are the chief types; the periodical winds, of which the monsoons of India may be mentioned as examples; and the variable winds of the middle latitudes.

Another and more recent classification takes account, first, of the source of the energy on which the winds depend, and second, on the manner of its application. The writer is unable to suggest a classification of the winds of the United States that would be particularly helpful. In no part of the country do they possess the steadiness of the trades, except possibly over extreme southern Florida. In some parts of the country, as will appear later, the mean direction of the wind changes twice a year. From this fact alone, however, it can not be said that the winds in any part of the United States are monsoonal in character.

The general circulation of the atmosphere is composed of two hemispherical wind systems extending from the equator to the poles. These systems are due to the large differences in temperature that exist between the equatorial and the polar regions. In the northern hemisphere the general circulation is about as follows: Surrounding the globe and a little to the north of the terrestrial equator is a region of little or no surface wind—commonly known as the “doldrums” or equatorial calms. This region varies somewhat in locality and width, not only regularly with the season, but irregularly with the longitude. It migrates northward a little after the sun, reaching its greatest northing in September and its greatest southing in March. Next in order in the general atmospheric circulation are the northeast trades. As their name indicates, these winds blow obliquely toward the equator. The best examples of the trades are found over the oceans, where their steadiness is remarkable. The trade-wind system, like the region of equatorial calms, migrates northward each year, its upper limit in the northern hemisphere reaching to north latitude 33° in September.

Next in order in the northern hemisphere and standing in sharp contrast to the steady trade winds are the irregular westerly winds of middle latitudes. The surface winds of the United States belong in the main to this member of the general circulation.

Some account has already been given of the control upon climate exercised by the movement of cyclones and anticyclones. (See p. 11.) It was there shown that the winds of the United States are constantly shifting from one direction to another under the influence of moving cyclones and anticyclones; that the character of the weather, especially in the cooler half year, is determined by the direction of the winds. It was also shown that southerly winds are warm and moist and northerly winds are cold and dry; that winds from the water surfaces were moist and served to transport moisture from the sea to the land. This is perhaps the most important function of the wind.

The prevailing direction of the wind for each month of the year is given in Table No. X for a number of selected stations. The values in this table were obtained by counting the number of times the various directions were recorded and averaging them.

An analysis of the data in Table No. X will show that on the average of the year the surface winds in the United States are from the west and northwest, the single exception being in the Florida peninsula, where from September to February, both inclusive, the prevailing winds are northeast. An exception should also be noted in the case of the South Atlantic

coast States, where the prevailing winds are also northeast during the months of August, September, and October. This interruption of the generally easterly motion of the surface winds was first pointed out by General Greely.^a

In some portions of the country there is a well-marked annual period in the direction of the surface winds which conforms in a general way to the annual period in temperature. In midwinter, when the interior of the continent is much colder than the adjacent water surfaces, northwesterly winds prevail uniformly over the Missouri Valley, the upper and middle portions of the Mississippi Valley, while in the Ohio Valley and lower Lake region the prevailing winds are mostly southwest to west. Over a limited area along the west Gulf coast, extending inland a few hundred miles (see the records for Galveston, Palestine, Shreveport, and New Orleans), the prevailing winds have a larger southerly component than elsewhere. As the spring advances the region of southeast to south winds spreads northward and eastward from the Texas coast, so that by April it embraces the States of Texas, Oklahoma, Arkansas, Mississippi, Louisiana, Alabama, western Tennessee, Missouri, Kansas, southeastern Nebraska, and Iowa. By June the northwest winds of midwinter have been supplanted by southerly winds over practically the whole of the country east of the Rocky Mountains. In autumn the northwest winds become more frequent and as autumn shades into winter they gain the ascendancy in the Missouri and Mississippi valleys and the Plain States.

MONTHLY AND ANNUAL PERCENTAGES OF WINDS FROM EACH OF THE EIGHT PRINCIPAL POINTS OF THE COMPASS.

(From self-registering wind instruments, 1894-1903.)

PORTLAND, OREG. (PACIFIC COAST).										MOUNT TAMALPAIS, CAL. (PACIFIC COAST). [5 years, 1899-1903.]									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.
January.....	7	6	11	19	19	10	6	21	1	January.....	23	16	3	11	5	7	6	29	0
February.....	5	7	9	18	23	13	8	18	1	February.....	18	8	2	8	13	13	9	28	0
March.....	6	5	5	14	20	15	8	26	1	March.....	8	3	2	11	11	22	14	29	0
April.....	6	3	4	15	19	12	10	29	1	April.....	14	3	2	6	6	11	14	44	0
May.....	8	3	3	14	16	12	9	34	1	May.....	9	1	0	2	2	5	18	62	0
June.....	8	3	4	12	14	12	8	39	2	June.....	10	3	0	0	0	5	16	62	0
July.....	10	2	3	8	8	8	6	54	3	July.....	7	2	1	0	1	7	21	60	0
August.....	8	2	2	10	10	6	5	54	3	August.....	12	2	1	1	2	11	27	45	0
September.....	6	3	3	11	13	10	7	46	3	September.....	16	6	2	3	3	9	19	42	0
October.....	6	3	4	17	16	10	8	34	2	October.....	13	9	5	12	8	14	8	32	0
November.....	5	4	8	22	22	12	7	18	1	November.....	11	9	5	15	11	14	8	28	0
December.....	6	5	13	24	19	10	6	16	1	December.....	20	24	6	8	5	11	5	21	0
Year.....	7	4	6	15	17	11	7	32	2	Year.....	13	7	2	6	6	11	14	40	0

SAN FRANCISCO, CAL. (PACIFIC COAST).										MOUNT HAMILTON, CAL. (PACIFIC COAST). [5 years, 1880-1885.]									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.
January.....	25	6	5	19	7	9	10	20	0	January.....	12	0	1	20	17	2	0	48	0
February.....	15	6	3	15	7	14	26	14	1	February.....	18	3	0	17	21	0	1	40	0
March.....	10	4	3	9	8	19	37	11	0	March.....	13	0	0	17	15	15	0	40	0
April.....	5	2	2	6	6	27	43	9	1	April.....	16	6	0	10	14	15	0	39	0
May.....	3	2	1	4	4	32	50	4	0	May.....	4	2	0	14	7	15	1	57	0
June.....	1	1	1	3	4	40	49	1	0	June.....	12	0	0	4	8	4	2	70	0
July.....	1	1	0	1	2	53	41	1	0	July.....	7	3	0	4	0	8	7	71	0
August.....	0	0	0	1	3	51	43	0	0	August.....	6	0	0	3	3	0	0	88	0
September.....	3	1	1	3	4	36	47	3	1	September.....	3	1	0	8	6	0	0	82	0
October.....	7	2	2	7	8	24	40	7	2	October.....	12	3	0	18	9	0	0	58	0
November.....	19	5	3	12	7	12	24	16	1	November.....	0	3	2	13	6	0	0	76	0
December.....	33	■	5	15	6	6	9	18	0	December.....	6	3	0	40	9	0	0	42	0
Year.....	10	3	2	8	6	27	36	9	0	Year.....	9	2	0	14	10	5	1	59	0

^a American Weather, Dodd, Mead & Co., New York.

MONTHLY AND ANNUAL PERCENTAGES OF WINDS FROM EACH OF THE EIGHT PRINCIPAL POINTS OF THE COMPASS—Continued.

SAN DIEGO, CAL. (PACIFIC COAST).											BISMARCK, N. DAK. (MISSOURI VALLEY).										
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		
January.....	12	21	10	6	5	8	10	22	5	January.....	10	5	11	11	6	3	8	43	3		
February.....	12	18	7	5	5	9	15	24	3	February.....	10	6	8	9	5	5	8	45	3		
March.....	10	13	6	5	7	13	17	26	2	March.....	17	10	13	11	7	4	6	30	2		
April.....	9	7	4	4	6	18	22	28	3	April.....	17	10	15	20	8	4	4	21	2		
May.....	5	3	1	3	9	26	23	25	2	May.....	12	12	17	20	10	4	6	20	1		
June.....	5	2	1	3	10	32	22	22	3	June.....	14	6	12	18	12	6	8	23	1		
July.....	7	1	0	1	5	25	22	34	3	July.....	14	9	14	16	12	5	6	21	1		
August.....	7	2	0	2	4	22	24	36	5	August.....	14	10	16	18	12	4	6	18	2		
September.....	10	4	1	3	6	15	17	40	5	September.....	14	7	12	14	9	5	6	31	2		
October.....	14	9	4	3	6	10	14	34	6	October.....	14	5	12	12	7	6	6	35	3		
November.....	16	19	7	4	4	6	10	28	5	November.....	12	7	12	12	8	7	5	35	3		
December.....	13	27	12	5	5	4	7	22	4	December.....	11	4	7	10	6	5	9	43	4		
Year.....	10	10	4	4	6	16	17	28	4	Year.....	13	8	12	14	8	5	6	30	3		
SALT LAKE CITY, UTAH (PLATEAU REGION).											DODGE CITY, KANS. (WESTERN PLAINS).										
January.....	4	4	7	30	16	9	12	16	2	January.....	15	11	3	15	11	9	11	23	1		
February.....	6	6	7	25	15	10	12	18	2	February.....	18	15	3	15	8	7	8	25	0		
March.....	8	7	6	27	14	6	9	20	1	March.....	16	12	4	21	14	8	5	20	0		
April.....	10	8	8	24	11	6	8	24	1	April.....	13	10	7	28	13	7	4	18	1		
May.....	10	10	10	23	11	5	7	23	1	May.....	12	17	6	29	18	6	2	9	1		
June.....	10	13	10	24	11	5	5	22	1	June.....	8	14	7	36	22	5	2	5	0		
July.....	8	12	10	28	12	5	5	18	1	July.....	5	13	7	40	26	4	1	4	1		
August.....	6	10	10	33	15	5	4	17	0	August.....	8	12	7	36	26	5	2	4	1		
September.....	7	11	10	31	10	4	6	22	1	September.....	10	14	5	30	26	4	3	6	1		
October.....	6	8	10	32	10	4	8	20	1	October.....	13	12	4	22	20	7	6	14	1		
November.....	5	6	8	34	12	7	10	16	2	November.....	17	12	4	18	14	8	7	18	1		
December.....	6	6	8	32	12	8	10	16	2	December.....	17	8	2	11	10	8	15	28	0		
Year.....	7	8	9	29	12	6	8	19	1	Year.....	13	12	5	25	17	7	6	14	1		
SANTA FE, N. MEX. (ROCKY MOUNTAIN REGION).											ST. PAUL, MINN. (UPPER MISSISSIPPI VALLEY).										
January.....	15	28	4	13	7	11	3	13	5	January.....	5	3	4	22	9	12	13	30	1		
February.....	15	22	4	14	8	12	4	17	5	February.....	5	4	4	17	9	13	14	31	2		
March.....	9	13	5	15	9	19	6	21	3	March.....	9	9	7	19	8	10	12	26	1		
April.....	8	11	7	21	10	21	5	16	2	April.....	10	10	9	23	9	8	7	21	3		
May.....	6	10	8	20	12	25	5	11	3	May.....	9	11	8	22	11	11	8	18	2		
June.....	4	9	10	25	11	24	5	9	2	June.....	6	5	7	26	12	13	11	17	3		
July.....	7	12	11	23	12	17	4	10	4	July.....	8	5	6	19	15	15	8	20	3		
August.....	6	13	12	24	11	16	4	10	4	August.....	8	6	6	21	14	12	8	21	4		
September.....	7	10	9	25	13	18	4	10	5	September.....	7	4	5	25	15	14	9	18	3		
October.....	9	14	9	23	10	17	4	11	5	October.....	6	4	4	25	12	12	11	22	3		
November.....	12	20	7	19	6	13	3	13	5	November.....	7	4	4	21	12	11	12	28	2		
December.....	16	29	5	14	7	9	3	14	4	December.....	6	2	3	19	10	13	13	31	1		
Year.....	9	16	8	20	10	17	4	13	4	Year.....	7	6	6	22	11	12	10	24	2		
PIKES PEAK, COLO. (ROCKY MOUNTAIN REGION).											ST. LOUIS, MO. (MIDDLE MISSISSIPPI VALLEY).										
January.....	14	22	0	1	3	15	23	21	0	January.....	9	8	5	12	21	10	17	17	0		
February.....	10	13	2	2	4	23	29	15	0	February.....	14	8	6	9	16	8	18	20	0		
March.....	14	3	1	1	4	22	35	19	0	March.....	12	8	8	16	19	8	13	16	0		
April.....	11	5	2	2	7	31	28	12	0	April.....	13	10	11	17	19	7	10	13	0		
May.....	4	8	7	4	8	26	32	9	0	May.....	11	11	8	15	28	10	9	9	0		
June.....	5	5	3	6	14	34	26	6	0	June.....	10	12	8	11	28	12	10	9	0		
July.....	10	19	13	3	8	14	22	9	0	July.....	11	11	7	10	29	14	8	9	0		
August.....	8	24	15	3	8	13	17	10	0	August.....	14	16	8	7	23	14	8	9	1		
September.....	5	6	6	4	14	32	23	7	0	September.....	12	10	7	14	30	10	7	10	1		
October.....	10	12	4	2	6	27	24	12	0	October.....	13	8	6	13	27	10	10	11	0		
November.....	12	12	2	1	3	21	29	17	0	November.....	12	5	6	14	27	8	12	17	0		
December.....	15	16	1	1	4	16	32	13	0	December.....	12	6	4	11	22	12	15	18	0		
Year.....	10	12	5	3	7	21	27	13	0	Year.....	12	9	7	12	24	10	11	13	0		

MONTHLY AND ANNUAL PERCENTAGES OF WINDS FROM EACH OF THE EIGHT PRINCIPAL POINTS OF THE COMPASS—Continued.

NEW ORLEANS, LA. (LOWER MISSISSIPPI VALLEY).										SAVANNAH, GA. (SOUTH ATLANTIC COAST).									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.
January.....	19	18	9	13	12	8	6	14	1	January.....	15	17	7	4	6	14	18	18	1
February.....	18	18	8	16	11	10	6	13	2	February.....	11	11	8	6	10	15	18	20	0
March.....	13	14	6	26	20	9	3	8	1	March.....	8	10	11	10	20	17	12	12	1
April.....	10	12	7	26	18	11	5	10	1	April.....	11	8	8	10	20	17	14	12	0
May.....	7	11	5	29	21	13	6	6	2	May.....	6	9	11	14	24	17	12	6	1
June.....	7	12	6	23	21	15	8	8	2	June.....	6	7	9	15	26	22	11	4	0
July.....	8	10	5	19	19	18	10	9	2	July.....	6	6	7	12	20	32	12	5	1
August.....	8	11	5	16	16	20	14	10	2	August.....	7	8	7	11	21	24	14	7	1
September.....	13	29	11	23	8	5	4	5	2	September.....	12	24	18	13	11	10	7	5	1
October.....	18	31	10	15	6	4	3	10	2	October.....	22	28	13	7	7	5	6	11	1
November.....	20	25	9	19	9	5	4	8	1	November.....	20	18	10	6	7	11	12	15	1
December.....	22	18	6	17	10	7	6	12	0	December.....	18	15	8	6	8	13	15	17	0
Year.....	14	17	7	20	14	10	6	9	2	Year.....	12	13	10	9	15	16	13	11	1
DETROIT, MICH. (LAKE REGION).										WASHINGTON, D. C. (MIDDLE ATLANTIC STATES).									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.
January.....	7	11	6	5	9	29	24	12	0	January.....	12	11	5	6	19	6	9	28	4
February.....	8	12	5	4	6	27	25	15	0	February.....	14	9	6	6	14	5	12	31	2
March.....	8	19	10	7	7	22	17	11	0	March.....	11	10	9	10	20	4	7	26	2
April.....	12	20	12	8	6	17	13	11	0	April.....	12	12	7	11	17	4	8	26	2
May.....	9	18	12	8	8	24	13	8	0	May.....	10	12	9	12	24	7	7	17	2
June.....	9	16	12	6	9	23	16	9	0	June.....	12	10	6	11	22	10	10	17	3
July.....	10	14	9	6	8	26	16	11	0	July.....	9	7	4	9	29	12	10	16	3
August.....	11	18	11	7	7	24	12	10	0	August.....	14	13	7	10	22	9	8	14	4
September.....	10	12	7	8	10	28	15	10	0	September.....	14	13	7	11	21	8	6	15	4
October.....	10	13	8	8	10	25	16	11	0	October.....	14	14	6	8	19	5	7	22	5
November.....	8	7	3	6	11	30	22	13	0	November.....	12	8	3	6	23	6	10	28	4
December.....	7	8	3	4	8	36	22	11	0	December.....	13	8	4	6	21	7	11	26	4
Year.....	9	14	8	6	8	26	18	11	0	Year.....	12	11	6	9	21	7	9	22	3
CINCINNATI, OHIO (OHIO VALLEY).										GALVESTON, TEX. (WEST GULF STATES).									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.
January.....	5	9	8	18	9	21	14	16	0	January.....	15	15	13	20	13	7	4	12	0
February.....	8	10	8	14	8	15	16	21	0	February.....	14	16	12	21	11	8	4	14	0
March.....	8	11	10	15	10	16	11	18	4	March.....	11	12	10	31	19	8	2	8	0
April.....	10	13	10	15	8	14	11	19	2	April.....	6	7	10	38	21	7	3	8	0
May.....	8	11	9	18	11	17	9	14	3	May.....	5	5	5	45	27	8	2	4	0
June.....	8	12	10	17	9	18	10	13	2	June.....	4	7	6	36	30	12	3	3	0
July.....	7	9	9	16	12	22	11	12	2	July.....	3	4	5	30	33	18	4	3	0
August.....	9	15	11	17	10	16	8	11	2	August.....	4	5	6	23	33	19	6	4	0
September.....	8	12	11	22	7	14	9	12	4	September.....	10	16	16	30	16	5	2	4	0
October.....	9	12	9	23	8	14	11	13	3	October.....	11	21	18	24	10	6	3	8	0
November.....	6	8	8	22	11	18	11	16	1	November.....	14	18	14	24	12	6	2	8	0
December.....	6	8	7	20	10	21	13	15	1	December.....	17	16	12	17	12	6	7	13	0
Year.....	8	11	9	18	9	17	11	15	2	Year.....	10	12	11	28	20	9	4	7	0
NEW YORK, N. Y. (MIDDLE ATLANTIC COAST).										BOSTON, MASS. (NEW ENGLAND STATES).									
	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.		N.	NE.	E.	SE.	S.	SW.	W.	NW.	Calm.
January.....	8	13	8	4	6	15	18	30	0	January.....	10	4	5	5	6	18	28	23	0
February.....	7	12	5	4	6	12	19	33	0	February.....	9	7	6	4	6	15	31	24	0
March.....	11	12	9	9	10	10	12	29	0	March.....	8	9	10	6	7	16	22	21	0
April.....	9	14	8	12	10	10	11	27	0	April.....	10	16	14	5	6	14	17	17	0
May.....	7	12	10	14	14	15	11	17	0	May.....	7	14	15	6	10	20	15	12	0
June.....	5	8	9	13	17	18	11	19	0	June.....	6	11	15	5	7	25	20	10	0
July.....	5	9	6	10	19	24	12	16	0	July.....	5	8	14	11	8	28	21	11	0
August.....	8	10	7	12	16	17	11	17	0	August.....	7	7	16	7	9	21	21	13	0
September.....	8	13	6	10	16	17	10	20	0	September.....	9	9	12	5	8	22	19	16	0
October.....	9	16	8	7	10	16	12	22	0	October.....	12	12	11	11	9	19	19	17	0
November.....	7	12	5	4	9	16	17	29	0	November.....	12	7	4	4	6	18	25	24	0
December.....	10	11	5	4	8	18	19	26	0	December.....	12	4	4	4	6	23	26	20	0
Year.....	8	12	7	9	12	15	14	24	0	Year.....	9	9	10	5	7	20	22	17	0

The *average frequency* of the winds from the eight principal points of the compass is shown in the table above. The data in this table were deduced from the records of self-registering wind instruments for a ten-year period, 1894-1903.

The relative frequency of the winds from the several points of the compass is an important climatic factor, since a knowledge of it enables one to form an accurate idea of the actual motions of the atmosphere past any given point. Since the surface winds are greatly influenced by local topography, especially when the observing station is situated in a valley, effort has been made to obtain continuous wind records from mountain stations. Accordingly there will be found in the above-mentioned table a statement of the relative wind frequency at Mount Tamalpais and Mount Hamilton, Cal., and Pikes Peak, Colo. The values for Mount Tamalpais and Pikes Peak were deduced from the records of self-registering instruments; the Mount Hamilton figures were deduced from eye observations made at 6 p. m. daily for a period of five years.

The records of Mount Tamalpais, elevation 2,375 feet above sea level, appear on the same page with those of San Francisco, distant therefrom in an air line less than 10 miles. An examination of these two records shows that the prevailing air currents at the upper station are northwesterly in all seasons; that the preponderance of northwest winds is most decided in summer and least in winter; also that 78 per cent of the winds blow from a northerly or westerly quarter. At the lower station westerly winds prevail in all months of the year, except July and August, when the direction is southwest, and in December and January, when northerly winds are most frequent. It may also be noted that at the lower station only 9 per cent of the winds are northwesterly, as against 40 per cent at the upper station. The difference is probably due to local topography. At San Diego, on the coast of southern California, northwest winds prevail at all seasons of the year, except in May and June, when there is a slight preponderance of southwest winds. Eye observations of the wind at Lick Observatory on the summit of Mount Hamilton, about 50 miles southeast of San Francisco, altitude 4,209 feet, show that there also the prevailing winds are northwesterly. Observations made by employees of the Central Pacific Railway where that road crosses the Sierra Nevada Mountains in California show that the prevailing wind direction is west to southwest.

Over the Great Basin, owing to the broken nature of the country, the prevailing wind direction is not clearly indicated by the observations. The record for a single station, Salt Lake City, is given, from which it will be seen that southeast winds prevail in practically all months of the year. To the east and north the mountains rise to elevations of 2,000 to 4,000 feet above the level of the city, while to the southeast the country is more open. It is probable that the prevailing direction of the wind at this station is also largely influenced by the local surroundings.

The wind record for Pikes Peak is taken from the automatic records made at that station in 1893 and 1894. In general the results shown in the table agree with the eye observations formerly made except that the percentage of southwest winds is much less than formerly obtained. The principal drift of the atmosphere over the high mountains of Colorado is from a westerly quarter at all seasons of the year. There is, however, a large number of northeasterly winds, particularly in July and August and in the winter months.

The plains east of the Rocky Mountains are represented by stations at Bismarck, N. Dak., and Dodge City, Kans. The annual period of the winds in this section is quite simple, viz, northwesterly in winter and southeasterly in summer, and the same is true for the middle and upper portions of the Mississippi Valley. In the lower Mississippi Valley, as at New Orleans, north to northeast winds are the prevailing winds in the colder half of the year and southeast winds in the warmer half.

On the west Gulf coast, represented by Galveston, Tex., the prevailing direction is southeast at all seasons of the year except in the months of July and August when southerly winds prevail.

The Lake region is represented by a single station, viz, Detroit, Mich. In this region, southwest to west winds prevail throughout the year.

In the Middle Atlantic States the prevailing direction is northwest in winter and mostly southerly in summer.

In New England southwest to west winds are the prevailing winds for all seasons.

On the South Atlantic coast, as at Savannah, Ga., northwest to west winds prevail in January and February, southerly winds during spring and summer, and northeasterly winds in autumn and early winter.

Special winds.—In some parts of the country winds possessing certain characteristics have received distinctive names; thus, in Texas the north wind that blows out of the front of an advancing anticyclone toward the Gulf of Mexico is locally known as a "norther." Some northers are dry—that is, unattended by precipitation—others are attended by cold rain that turns into sleet and snow and is quite destructive to stock. Winds of the same character farther north are known as "blizzards." The distinguishing feature of the "blizzard" is a fine powdery snow that fills the air to the total extinction of all familiar landmarks and is driven at high speed by the sharp biting north winds. In the interior valleys of California a hot, dry north wind prevails during May, June, and July. These dry parching winds are also locally known as "northers," and are produced in much the same way as those of like name east of the Rocky Mountains, viz, by the outflow from an area of high pressure in the north toward an area of low pressure in the south.

The "Santa Ana" of southern California is a hot wind that occasionally blows from the deserts toward coastal regions. The warmth and dryness of the "Santa Ana" are desert products; in the case of the "norther" the air is heated by compression as it descends from the mountain tops to the floor of the valley.

The "chinook" is a warm, dry wind that descends the eastern slope of the Rocky Mountains in Montana, Wyoming, and Colorado, and flows northeastward over the plains. It is also prevalent in the Canadian provinces of the northwest directly east of the Rocky Mountains and, in general, it prevails whenever a current of air is drawn or forced over a high mountain range, particularly if the air at the beginning of the ascent be warm and moist. The temperature before the beginning of the chinook may be anywhere from zero to 30° below. Immediately the chinook begins to blow there is a sharp rise in temperature, in rare cases as much as 40° in fifteen minutes, but generally much less. The highest temperature in a chinook is not much above 40° and the duration is exceedingly variable, depending in general on the rapidity or slowness of the general easterly drift of the atmosphere. When the central plateau region is occupied by an area of high pressure which persists for a week or ten days there is a more or less permanent chinook wind over Montana and the region to the northward, since the pressure distribution is then favorable for continued southwest winds over the mountain ranges and down into the lowlands on the eastern side of the range. The anticyclone of the Plateau apparently dominates the wind circulation in the lower layers of the atmosphere, at least over middle Rocky Mountain districts. While it persists cyclones may move eastward from the Washington coast along the forty-ninth parallel, or they may develop in Alberta and move southeastward; in any event, the wind over Montana and northern Idaho for the greater portion of the time will be southwest and the season will be characterized as an open one.

The warmth of the chinook is not imported from the Pacific, but is due wholly to a local physical cause, viz, the compression of the air as it passes rapidly from the mountain crests to the lowlands farther eastward. Winds similar to the chinook are known in many portions of the globe. The "foehn" of Switzerland, a warm wind that descends on the northern side of the Alps, is an excellent example. A complete explanation of the origin of this wind was made by Dr. J. Hann, of Vienna, in 1882, although the correct physical principles of the phenomenon were outlined at an earlier date. These may be stated in the following form: Dry air in ascending expands and cools about 1° F. in 183 feet, and the cooling is said to be adiabatic when there is no exchange of heat between the air and surrounding objects—that is, the air must not lose heat to, or receive heat from, outside sources. The process is reversible—that is to say, a mass of air in descending is warmed by compression 1° F. for each 183 feet, provided, of course, there is no exchange of heat with outside sources. When, however, the air is moist, a new element is introduced. The amount of moisture that can be held in suspension in the atmosphere decreases very rapidly with a decrease of temperature; so that if a quantity of air from the foot

of the windward side of the mountain be drawn to the top the following sequence of events will be noted. As the air ascends the mountain side it continues to cool at a uniform rate until a temperature is reached at which a portion of its moisture is condensed into cloud and fog. The process of condensation involves the liberation of latent heat and thereby reduces the rate of cooling with elevation, so that further cooling with increase of altitude is comparatively slow and thus the top of the mountain is reached with a high temperature for the altitude. In its descent the reverse process takes place. The air warms by compression, and its capacity for moisture being thereby increased the clouds soon dissolve. On reaching the base of the mountains it has become both warm and dry. In the case of chinooks in Montana and the northwest in general, the warmth and dryness greatly promote evaporation, so that a foot of snow may be evaporated in a few hours.

The phenomena of the chinook wind may occur in all seasons, although, as has been pointed out by Ferrel, it is best exemplified in the winter season of high latitudes, since in this case the vertical gradient of the undisturbed atmosphere is small, and the temperature of the air descending from a high altitude and heated at the rate of 1° for each 183 feet, is much higher at the lower level than that of the surrounding air. In the summer season, during the day when the earth's surface is very warm and the decrease of temperature with increase of altitude is great, the chinook effect is scarcely appreciable.

Chinook winds are not confined to the eastern base of the Rocky Mountains, but may be found elsewhere whenever the conditions hereinbefore described occur. A well-marked chinook or foehn effect may be observed in the temperatures of Rapid City, S. Dak., a station situated directly in the lee of the Black Hills.

In addition to the special winds already described, mention should be made of the interchange of air that takes place between the coast lands and coast waters, due to the unequal heating and cooling of the two surfaces. Such winds are known as sea breezes. They occur daily along the coasts of large bodies of water, but their influence does not extend inland beyond a few miles. Land and lake breezes are also experienced in relatively quiet conditions of the air. Both sea breezes and lake breezes are light winds and are frequently completely masked by the stronger circulation of the cyclone and anticyclone. Mountain and valley winds arise in much the same way and under the same conditions.

Wind velocity.—In all of the cities and towns in which the Weather Bureau maintains an observing station, the location of the station has been changed, not once, but many times in the last thirty-odd years. As a rule, the changes from one building to another were made in order to escape being shut in by the erection of taller buildings in the immediate neighborhood. The height of the anemometer above ground and the local environment of the instrument have been changed so frequently that it is not possible to obtain data of wind velocity that are directly comparable. The later velocities are mostly greater than the earlier ones, since the elevation of the anemometer has been progressively increasing. In some cases the velocities have been doubled.

In the absence of any detailed study of the effect of increased elevation upon the wind velocity, it is impossible to state how accurately the recorded velocities represent the true movement of the wind at the various stations. In a general way enough is known to warrant the statement that the wind velocity is greatest on the coasts and over the western plains and least in interior valleys and in the lee of great mountain ranges. The months of greatest wind velocity are March and April, the least, July and August.

The velocity of the winds in the United States is greatest along the seacoast in northern latitudes, especially in the neighborhood of capes and promontories that project well into the oceans. On the Atlantic coast the winds off Hatteras are notoriously boisterous in the cold season and also during the prevalence of a West India hurricane. The southern New England coast is also a region of strong winds. On the Pacific coast high winds are experienced from the Golden Gate northward to the Straits of Fuca. The coast line, however, is bold and precipitous in marked contrast to the conditions which prevail on the Atlantic shore line. Winds of very high velocities have been recorded at Point Reyes and Cape Mendocino, Cal., and Fort Canby,

at the mouth of the Columbia. In these cases, however, the velocity observations were made several hundred feet above sea level and on the seaward slope of bluffs ranging 200 to 600 feet above sea level, so that a direct comparison with velocities recorded along the Atlantic coast is not practicable. In general, however, it does not appear that the velocities on the two coasts differ materially.

In the interior there are two regions of relatively high winds—viz, the Lake region and the Plains States east of the Rocky Mountains. The high winds over and along the Great Lakes are explained by the fact that the Lake region is the great highway of storms which cross the United States, also to the diminished surface friction interposed by the lake surfaces. The last-named cause, viz, diminished surface friction, is probably one of the chief causes of high winds over the eastern Rocky Mountain plains. Among other contributing causes may be mentioned the comparatively level, treeless character of the country and the strong contrasts in temperature that occasionally obtain between the mountain masses to the westward and the great valley to the eastward. The great contrasts in temperature that arise in this region are characteristic of spring months, whence it follows that high winds and gales reach their fullest development at that season of the year.

A statement of the number of days during the ten-year period—1891–1900—on which a wind of 40 miles or more per hour was registered at certain points in the Dakotas, Nebraska, Kansas, Oklahoma, the Panhandle of Texas, and extreme northwestern Iowa, appears in the following table. A second table gives the distribution of these winds throughout the year, and finally in text figure No. 7 will be found a graphic presentation of the frequency and direction of gales at four representative stations in the Great Plains region.

TOTAL NUMBER OF DAYS WITH GALES—WINDS OF 40 MILES PER HOUR AND OVER FROM THE DIRECTIONS AS INDICATED DURING THE TEN YEARS 1891–1900.

Stations.	NW.	N.	NE.	E.	SE.	S.	SW.	W.	Total.
Bismarck, N. Dak.	96	10	10	3	11	5	1	8	144
Pierre, S. Dak.	■	21	15	16	17	13	3	23	188
Huron, S. Dak.	97	10	10	3	143	52	15	27	357
Sioux City, Iowa.	138	22	1	5	21	70	10	6	273
North Platte, Nebr.	71	7	1	0	9	9	3	9	109
Omaha, Nebr.	6	2	7	0.	0	1	1	0	17
Concordia, Kans.	3	1	0	0	■	11	0	■	15
Dodge City, Kans.	47	13	4	1	53	86	30	■	234
Wichita, Kans.	5	17	1	0	0	4	5	3	35
Oklahoma, Okla.	13	26	■	0	6	15	■	3	70
Amarillo, Tex.	49	214	13	18	48	187	140	87	756
Percentages.	27	16	3	2	14	21	10	7	.....

MONTHLY DISTRIBUTION OF GALES DURING THE TEN YEARS 1891–1900.

Stations.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Bismarck, N. Dak.	15	11	14	19	18	17	6	4	5	14	17	4	144
Pierre, S. Dak.	13	11	17	18	22	28	19	17	13	14	10	6	188
Huron, S. Dak.	22	17	33	49	43	42	25	18	39	27	27	15	357
Sioux City, Iowa.	20	29	29	42	32	26	12	11	20	19	16	17	273
North Platte, Nebr.	■	5	16	27	18	8	7	4	1	6	10	2	109
Omaha, Nebr.	0	3	2	3	1	0	2	3	2	0	1	0	17
Concordia, Kans.	0	0	3	■	■	1	1	0	0	0	0	0	15
Dodge City, Kans.	5	9	26	52	36	31	19	5	11	16	17	7	234
Wichita, Kans.	5	3	6	10	1	3	2	1	0	1	3	0	35
Oklahoma, Okla.	3	10	15	13	9	5	2	4	1	2	6	0	70
Amarillo, Tex.	51	67	91	114	82	83	39	21	37	56	66	49	756
Percentages.	6	■	12	16	12	11	■	4	■	7	8	5	.....

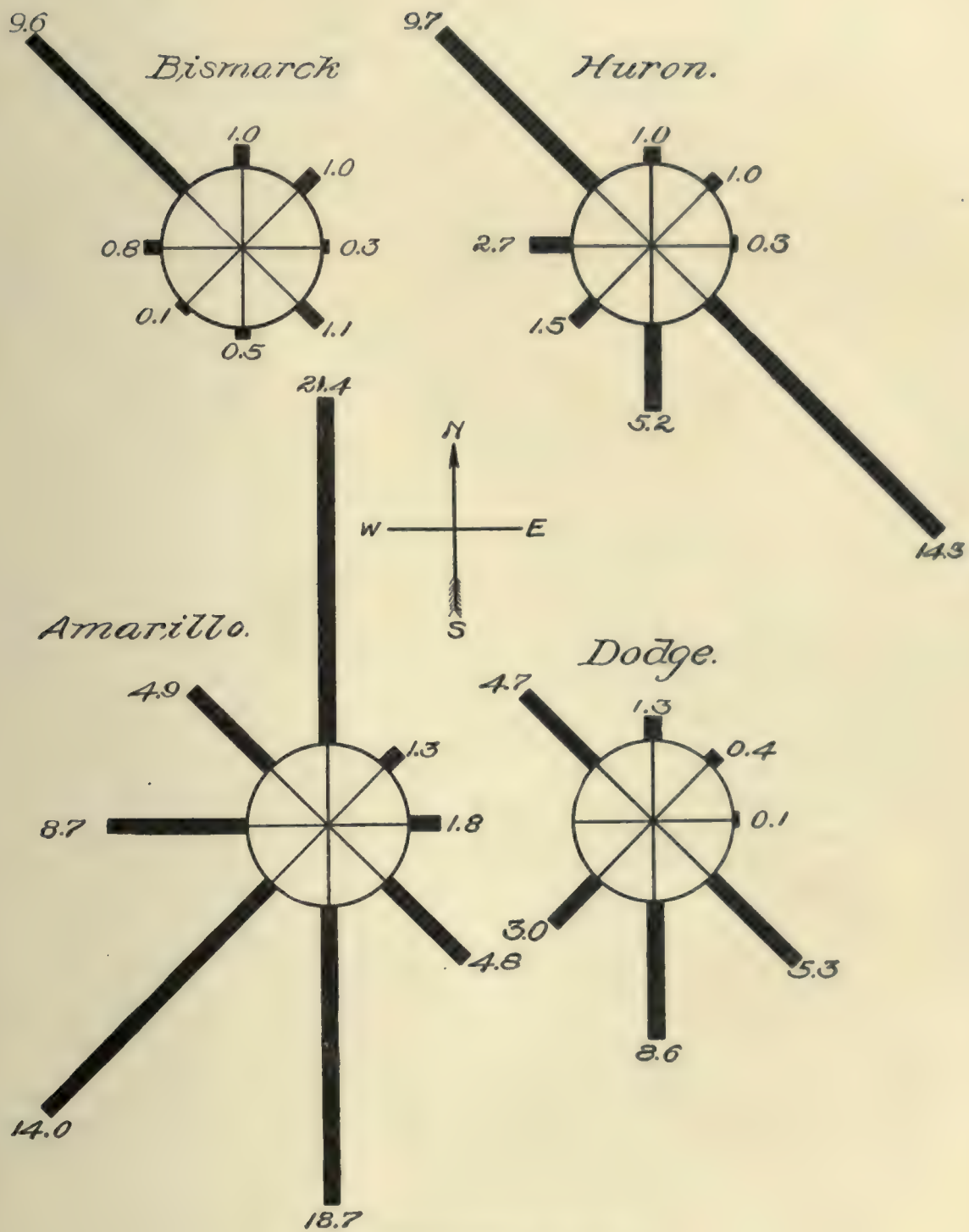
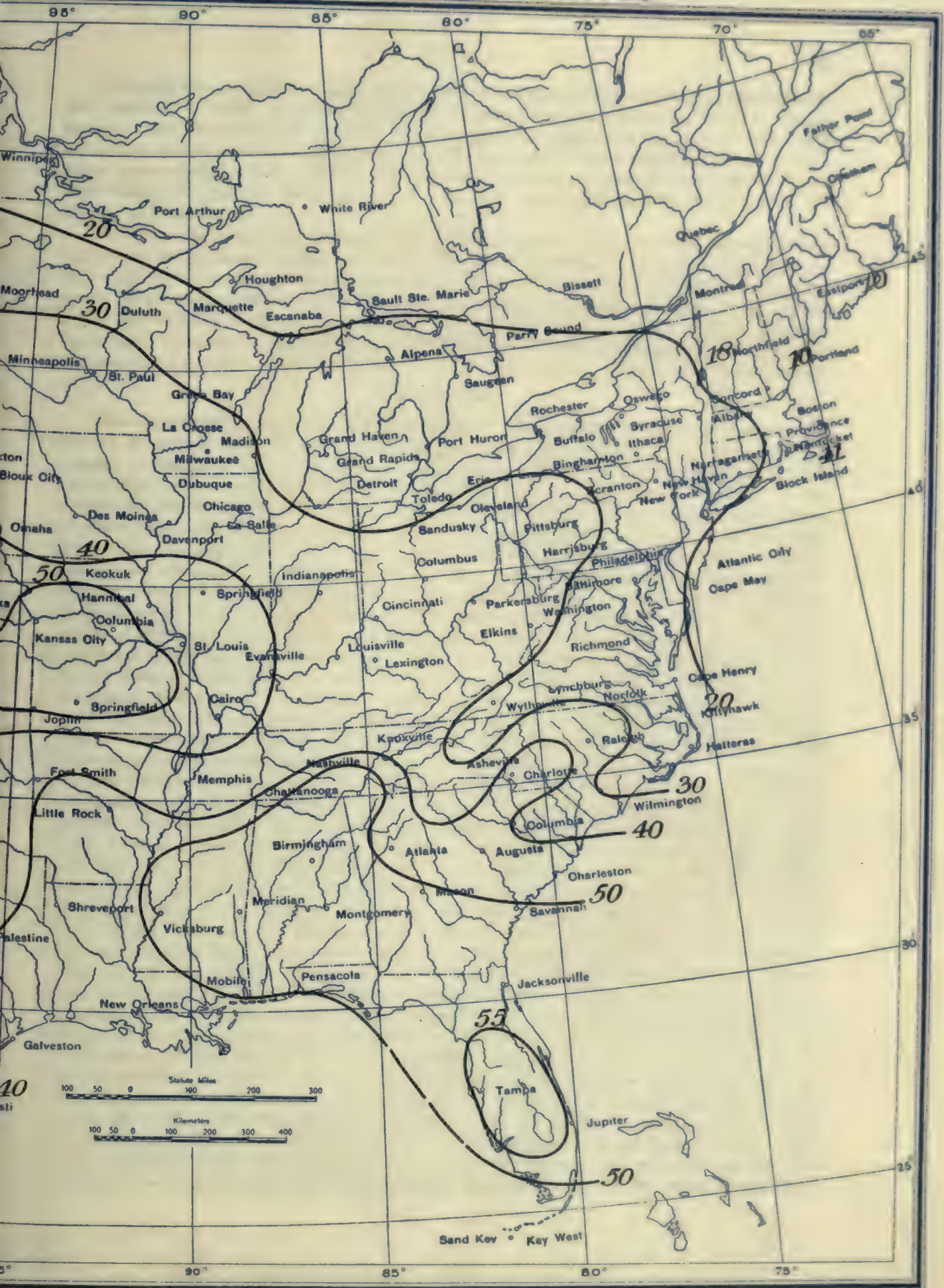


FIG. 7. Frequency of gales in the Plains States.





RSTORM DAYS IN THE UNITED STATES.





Although the occurrence of high winds can not be prevented, it is possible to greatly diminish their destructive effects by planting a barrier of trees around the field or lot it is wished to protect. The California fruit grower early recognized this important function of timber and put it into actual practice by planting rows of Eucalyptus or other suitable trees around the citrus groves of that region. In the great western plains tree planting has been greatly stimulated during the last few years and is now receiving special attention at the hands of the Bureau of Forestry.

It is important that wind-breaks be laid off at right angles to the prevailing direction of the high winds, as has been pointed out by the Bureau of Forestry. The great majority of the high winds on the western plains, as shown by the above table, blow from either the north or the south, the percentage of northerly winds being slightly in excess of the southerly winds. Wind-breaks should have, therefore, a general east and west direction, modified only in case local topography demands it. In general a wind-break running in a north-south direction on the eastern side of the farm is least necessary, since the percentage of easterly gales is quite small.

THUNDERSTORMS.

Thunderstorms are largely the result of a vertical interchange of air masses having different degrees of warmth and moisture. When a considerable mass of the lower warm moist air ascends by reason of surface overheating or from any other cause, a corresponding mass of colder drier air must descend to take its place. The colder runs under and pushes up the warmer air, and the latter, after losing a portion of its moisture as rain and its heat by radiation from the clouds, and also by expansion as it rises to greater heights, becomes in its turn again the heavier and descends beneath other moist air that is being supplied by surface heating. This process once well established will continue as long as the supply of warm moist air holds out, and the whole system of ascending and descending winds will progress from place to place in the direction of the prevailing winds at some distance above the earth's surface. Thunderstorms of this class occur on hot summer afternoons in moist quiet air and over regions of weak barometric gradients. They have been termed *heat* thunderstorms, as distinguished from a second class to which the name *cyclonic* has been given, since the latter invariably occur in connection with regions of barometric minima (cyclones). Cyclonic thunderstorms arise in much the same way as heat thunderstorms, but they are distinguished from the latter by reason of their greater violence and the fact that they frequently persist through the night hours or as long as the cyclone to which they owe their existence survives.

The Florida Peninsula, the East Gulf States, and the many parks and valleys of Colorado are regions particularly favorable to the development of heat thunderstorms, which, as may be properly inferred, occur only in the summer season. Cyclonic thunderstorms, on the other hand, occur at all seasons of the year, although their prevalence in winter is restricted to the Gulf States and the South Atlantic coast. On rare occasions they may occur along the Atlantic coast as far north as southern New England. The region of greatest frequency of cyclonic thunderstorms is in the Missouri, Mississippi, and Ohio valleys, the southern portion of the Lake region, Tennessee, the Middle Atlantic States, and New England. As before stated, these storms occur in connection with barometric minima which generally move in an easterly direction over the northern third of the United States east of the Rocky Mountains. As has been pointed out by earlier writers, the occurrence of thunderstorms in a region of low pressure is mostly confined to the southeastern quadrant of the low, although there are important exceptions to this statement. In ellipsoidal lows that traverse the upper and middle portions of the Missouri Valley and the Northwest, thunderstorms occur not in the southeastern but in the northwestern quadrant. In case the barometric minima assume the trough form, as frequently happens, thunderstorms occur along the dividing line between the warm moist air on the southeastern side and the cold drier air on the northwestern side as the trough crosses the meridian. Some of the most severe thunderstorms of record have occurred under these conditions. Thunderstorms frequently occur over large areas, seemingly as the culmination of a short heated spell. The breaking up of the longer heated terms in the Ohio

Valley and the Atlantic coast districts is likewise attended by general thunderstorms which are only loosely connected with cyclonic disturbances. The breaking-up process is generally initiated by the eastward movement, across the Lake region, of one or more areas of low pressure. The fall in pressure that slightly precedes the movement of the low is decidedly greater in northern than in southern districts. In the latter, pressure at the beginning and during the continuation of the heated term ranges from 30.20 to 30.25 inches, with the crest of the high over the Southeastern States. So long as this high maintains its position, hot weather continues in the interior valleys and Atlantic coast districts, but with the eastward movement of each area of low pressure along the Lakes, there spreads over the Southeastern States a light wave of falling pressure, which, as before stated, diminishes in amplitude from north to south. These light waves of falling pressure gradually reduce the average pressure in the southern high to 30.00 inches or less. The barometric gradients now become weak, and small local cyclonic disturbances, scarcely perceptible on the daily weather maps, are formed, and the heated term breaks up in general thunderstorms.

That part of the United States in which thunderstorms occur most frequently lies east of the Rocky Mountains and south of about the forty-second parallel of latitude. Plate No. XXVIII shows the average number of thunderstorm days in the several portions of the country as deduced from observations, mainly at the regular Weather Bureau stations. As may be seen from the plate, there are two regions of maximum annual frequency (fifty days or over), the first in Florida and the East Gulf States and the second in the lower Missouri Valley. The regions of least frequency (fifteen days or less) are along the New England coast, the northern portion of the Lake region, the Plateau region, and the Pacific coast.

The general belief that thunderstorms do not occur on the Pacific coast is not well founded. It is true that they are of infrequent occurrence along the immediate coast and in the lowlands, but they are quite frequent on the higher levels, both of the Coast Range and the Sierra Nevada. The region of maximum frequency west of the Rocky Mountains lies in Arizona, southern Utah, and southwestern Colorado, where thunderstorms occur, on the average of the year, on upward of twenty days. Except on the higher levels, many thunderstorms in the above-named States, are rainless. In fact, it is not uncommon, in the arid regions of the Southwest, to witness a thunderstorm in progress the rain from which evaporates in the extremely hot and dry air before it reaches the earth.

In general, thunderstorms are most prevalent during the warmer hours of the afternoon, although they may occur in northern districts at any hour. In the Southern States and in Florida night thunderstorms are infrequent. It is believed that the conditions favorable to their development in those districts do not arise during the night hours, but that thunderstorms which originate in distant localities may move into and dissipate in adjoining regions during the night hours.

The distribution throughout the year varies for different localities. The maximum frequency seems to occur in the late spring and early summer months in the West and Southwest, and in Atlantic coast districts in July and August. The maximum frequency in the Rocky Mountain region and in Arizona also occurs in July and August.

TORNADOES.

A tornado is properly defined as a violent local storm, in connection with which is noted a well-defined, pendent funnel-shaped cloud, with attendant rotary winds of sufficient violence to break off and uproot trees, prostrate dwellings or other objects in its immediate path. In the true tornado there is always unmistakable evidence of the action of violent rotary winds over a narrow path. In many cases there is also evidence tending to show that the barometric pressure in the central core of the funnel cloud is extremely low. Tornadoes, like thunderstorms, may occur in some part of the United States in any month of the year. In winter and early spring they occur only in the Gulf and South Atlantic States, but with the advance of the season they occur farther and farther to the northward. In April and May destructive tornadoes may occur in any portion of the great interior valley of North America south of latitude

48°. A characteristic of April and May tornadoes is their liability to develop almost simultaneously over considerable areas and travel in parallel lines for a considerable distance. In the late summer and fall months the tendency to occur simultaneously at numerous points is not so well marked. June is the month of greatest frequency in the Mississippi Valley; February and March in the East Gulf and South Atlantic States, and July and August in the Middle Atlantic States and New England. In the last-named geographical divisions a severe tornado rarely occurs before July or August. The path of the tornado varies in length, in extreme cases, from a few rods to 100 miles. The average, however, is probably less than 25 miles of continuous destruction. The path of destruction is not always continuous, owing to the tendency of some tornadoes to rise from the earth and descend again at some point farther to the east-northeast. The width of the path of total destruction ranges from 100 to 600 yards, although there are important exceptions, as in the tornado which traversed Jasper and Clark counties, Miss., on April 19, 1893. Of the path of this storm a reliable observer says:

The width of the path of great destruction in the storm was from 1 to 2 miles; everything was swept away; even the growing grass seemed as though a tide of water had passed over it. About the center nothing was left.

The direction of movement of tornadoes in a large majority of cases is from the southwest to the northeast; in a few cases, northwest to southeast or west to east. Its progressive movement is generally rapid—from 25 to 45 miles per hour. At this rate its duration at a given point is generally measured by seconds. The violence of tornadic winds is too well known to need further elucidation.

Tornadoes develop most frequently in the afternoon hours, just after the warmest part of the day. Very destructive tornadoes have been known to form as late as 7.30 p. m., mean local time, and to persist until about midnight. The writer does not know of an authentic case of the development of a tornado in the early morning hours. While tornadoes have been reported as occurring at 1.30 a. m., no evidence has been adduced to show whether the storm formed at that time and place or at some point farther to the southwest at a late hour of the preceding day.

It is difficult to form a correct idea of the frequency of tornadoes in the United States. The extremely local character of the phenomena on the one hand and the sparseness of population on the other make it almost impossible to obtain an accurate record of the number and distribution of tornadoes. There is also difficulty at times in distinguishing between the true tornado and straight line squall winds, especially on the part of uninformed persons. Many so-called tornadoes are found upon investigation to have been simply severe thunderstorms with more or less violent squall winds. In the newer States an increase in tornadoes may be apparent, due largely to the increase in the inhabited area.

The probability of injury by tornado depends upon both the frequency of the tornado per unit area and the area of the path of great destruction, viz, on the product of its length by its breadth. The area of great destruction, as before stated, is small, say, on the average, a strip 300 yards wide by 20 miles in length, or a total superficial area of a little over 3 square miles. The area of the average county in the eastern part of the United States is not far from 600 square miles. It will readily be seen, therefore, that should a tornado occur within its borders, not more than the half of 1 per cent of its total area would be affected. Professor Abbe has computed the tornado frequency per unit area from the published statistics of Finley, 1874–1881, and Henry, 1889–1896 (*Monthly Weather Review*, June, 1897). He says:

The table shows that even in the so-called tornado States the probability that any area of 100 miles square will be visited by a tornado in any year is generally less than certainty, or unity, or less than 100 per cent. If these large areas be divided up into 100 smaller ones of 100 square miles each, or 10 miles square, then the probability that some one of these will be visited by a tornado within a year is less than 1 per cent, but the probability that any specific one of these smaller areas will be so visited is only the hundredth part of 1 per cent per annum, or 1 per cent per century. Within such a smaller area of 10 miles square the destructive path of the tornado, when it finally comes, will probably cover less than 25 square miles, so that the probability that some one of the 100 areas of 1 square mile will be struck is less than one-fourth of 1 per cent per century; but for any specific area or farm of 1 square mile the probability is much less than one-sixteenth of 1 per cent per century. In fact, the probability that a given house will be destroyed by a tornado is less than the probability that it will be destroyed by lightning or fire.

The violence of a tornado is best known by its destructive effects. This method distinguishes between the violent storms and those of only moderate energy, but fails completely when the storms pass through sparsely settled regions. The tornadoes that have caused great loss of life during the last twenty-five years are few in number. As a rule each one of them swept across a small town or other thickly settled community. The following list includes all tornadoes in which the loss of human life was 45 or more.

The list begins with the Marshfield, Mo., tornado of April, 1880. Since this was an extraordinarily violent storm, covering, as it did, a large extent of territory, a short description by Prof. Francis E. Nipher, formerly of the Missouri weather service, is appended:

The great event of the month was the storm of the 18th, which resulted in the formation of three distinct tornadoes and several minor whirls, only one of which (near the Marshfield whirl) can be properly located on the map. Of these the most violent began somewhere near the southwest corner of the State, moving up the Finley Creek Valley. The width of its path exceeded a mile at some points, and over this width even oak saplings were torn out by the roots and either thrown out of the path or were laid in windrows in the lee of the ridges. The average width of its destructive path for a distance of 100 miles would be at least 3,000 feet, covering an area of about 60 square miles. About thirty minutes earlier, on the average, a tornado which originated in the northwest township of Stone County, swept to the northeast in a path diverging slightly from the path of the former storm, and although less violent, was much more destructive to life, 60 or 70 persons being killed in the town of Marshfield, which was wholly destroyed. The destructive path of this storm was about 45 miles long and, on the average, 1,500 feet wide, an area of 13 square miles. This storm has been traced to its origin in a harmless dust whirl, which was caused by the meeting of two currents of air, on section 16 of township 26, range 24 west, of the fifth meridian. The third tornado occurred at about the same time, passing to the northeast, near Jefferson City. The area covered by these three storms will not fall short of 80 square miles. Not less than 100 persons lost their lives.

June 17, 1882: The Grinnell, Iowa, tornado.—The next destructive tornado occurred on June 17, 1882, in Poweshiek County, Iowa, almost completely wrecking the town of Grinnell and the village of Malcomb in the same county. The loss of life in Iowa on that day due to tornadoes was 100, and the destruction was distributed throughout at least four counties.

April 22, 1883: The Kemper County, Miss., tornado.—A series of severe tornadoes occurred in the counties of Kemper, Copiah, Simpson, Newton, and Lauderdale, Miss., on April 22, 1883. Fifty-one persons lost their lives in these storms.

April 14, 1886: The Sauk Rapids, Minn., tornado.—In the Sauk Rapids and St. Cloud tornado of April 14, 1886, about 74 persons were killed and property to the value of \$400,000 was destroyed.

May 12, 1886: The Greene-Huron counties, Ohio, tornado.—On May 12, 1886, severe local storms and tornadoes in the counties of Montgomery, Greene, Clark, Champaign, Butler, Preble, Wyandot, and Clinton caused a loss of 57 lives and the destruction of a large amount of property.

March 27, 1890: The Louisville, Ky., tornado.—On March 27, 1890, 76 persons were killed and \$2,500,000 worth of property was destroyed in the city of Louisville, Ky., and on the same day there were killed in the outlying districts of Kentucky and Illinois 37 other persons, making a total for the storm of 113.

June 6, 1893: The Pomeroy, Iowa, tornado.—The Pomeroy, Iowa, tornado of June 6, 1893. This tornado swept through the counties of Cherokee, Buena Vista, and Pocahontas in a southeasterly direction; 89 people were killed.

September 21, 1894: Clay County, Iowa, tornado.—This storm had its origin in Clay County, and little destruction was caused until it reached Palo Alto County. Four distinct tornadoes were noticed on this date in northwestern Iowa and southern Minnesota; 53 persons were killed and much property destroyed.

May 15, 1896: The Sherman tornado.—This storm passed over Sherman and Grayson counties, Tex., and struck the towns of Justin, Gribble Springs, and Sherman; 78 persons were killed. The loss of life by tornadoes and other local storms in May, 1896, was 416, greater than for any corresponding period of which records have been kept.

May 24-25, 1896, tornadoes.—Nineteen people were killed in Iowa, 8 in Illinois, and 47 in Michigan, a total of 74 persons, by a series of destructive tornadoes on the above dates.

May 27, 1896: The St. Louis tornado.—The greatest damage to property and loss of life wrought by a single storm was that which followed in the wake of the St. Louis tornado of May 27, 1896. This tornado was not unusually severe, and if by chance it had passed through a thinly

settled district it is extremely doubtful whether it would have caused sufficient damage to warrant its appearance in the list of tornadoes. The loss of life in Missouri and Illinois in connection with this tornado was 306, and the property destroyed amounted to \$12,904,900.

April 27, 1899: The Kirksville, Mo., tornado.—Thirty-four persons were killed at Kirksville and 12 at Newcomb. Four distinct tornadoes were observed in Missouri on this date.

June 12, 1899: The New Richmond, Wis., tornado.—Loss of life, 116 persons. Swept through the town of New Richmond, Wis.

June 1, 1903: Gainesville, Ga., tornado.—This was not by any means a severe tornado, but its path passed through a large cotton factory and the residences of a number of the operatives. In all, 78 persons were killed.

The amount of property destroyed annually by tornadoes varies between wide limits. The greatest loss during the period 1889 to 1897 was \$14,348,300 in 1896, the least during the same period \$173,500. The very great destruction in 1896 was due almost wholly to the fact that a tornado swept through one of the great western cities. The destruction wrought by this tornado in half an hour's time amounted to \$10,239,000 in St. Louis, Mo., \$2,000,000 in East St. Louis, Ill., \$100,000 in St. Louis County, Mo.; total, \$12,339,000. In one other year, 1890, the loss due to a single storm amounted to upward of \$3,000,000. Omitting these two cases, the average annual loss for the period in question was, roughly speaking, about \$1,000,000. On the average not more than three or four really destructive tornadoes occur in the United States each year. If, happily, these should pass through thinly settled regions, the loss of life and property will not be great, but should they pass through a densely populated center great loss of life and property would naturally result.

The principal condition necessary to the formation of a tornado is an unstable state of the atmosphere. The atmosphere is said to be in a state of stable equilibrium when a portion of it, which from any cause receives an upward or downward motion, tends to return to its original position. It is said to be in a state of unstable equilibrium when any part of it, given an upward or downward motion, tends to continue in the direction of the original impulse and to increase the magnitude of the original disturbance. The unstable state is produced when masses of air of different temperatures and moisture contents are brought into juxtaposition, especially if the rate of diminution of temperature with elevation varies widely in the different masses of air. The rate of decrease of temperature with increase of altitude for unstable air in the lower part of the atmosphere is about 1° F. for each 330 feet of ascent on the average for all localities and seasons of the year. If the vertical distribution of temperature in any considerable portion of the lower layers of the atmosphere should be greater than that of the surrounding air, it is readily seen that a slight upward motion would cause its temperature to become less, and consequently its density greater than that of the surrounding undisturbed air at the same elevation; hence its upward motion would soon be checked, and after a few oscillations the air would be brought to a state of rest in its original position. In other words, warm air will not ascend when the actual diminution of temperature upward is less than that due to cooling by ascent. The atmosphere is in the unstable state, on the other hand, when the diminution of temperature with elevation is more rapid than that due to cooling by ascent. When the atmosphere is in a state of unstable equilibrium, convection currents of greater or less strength are set up, whereby there is an interchange of the colder dry air aloft with the warmer surface air. This interchange of air is accomplished sometimes gently and sometimes with very great violence.

In thunderstorms, as has been pointed out on page 75, the ascending warm moist air descends in the rear of the storm as cold dry air, and we may conceive of the circulation as proceeding around a horizontal axis, warm air rising on the front and descending on the rear as cold dry air. The circulation of air in the tornado is markedly different. In the latter there is a rotary motion of the winds about the core or axis of low pressure as well as a violent uprush of air in the tornado funnel. Up to this point the initial conditions which produce thunderstorms and tornadoes are identical. With the formation of a funnel cloud or spout, however, the phenomena begin to diverge. The precise nature of the initial impulse necessary to set a mass of air in

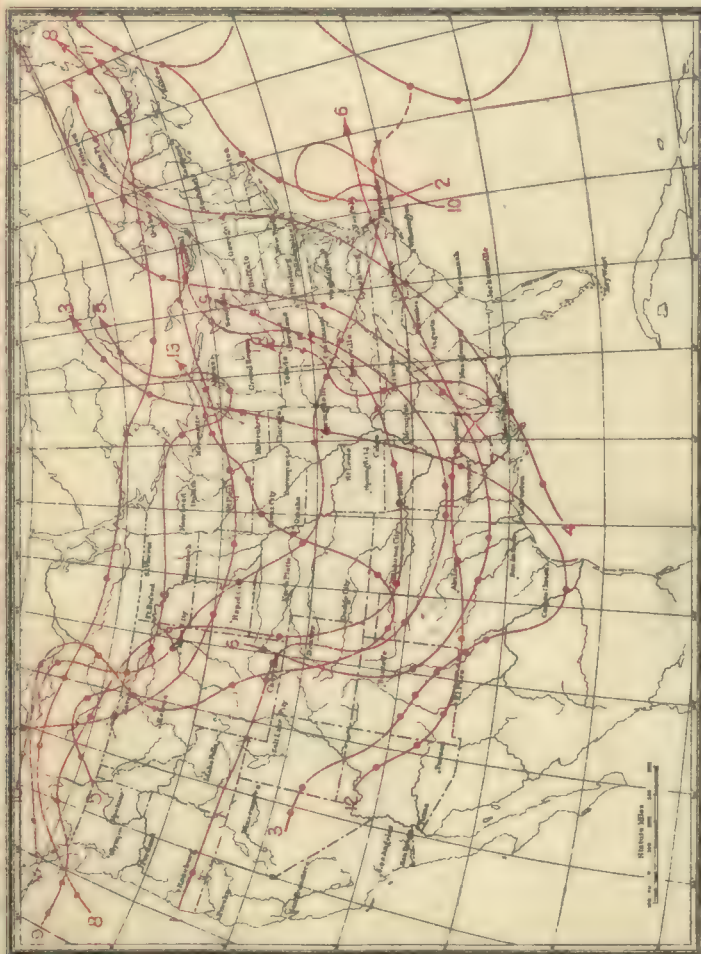
motion whirling about a common center is not clear. According to Professor Bigelow, if a mass of air, say 6,000 feet in diameter, is by some means given a rotary motion half a mile above the ground it will run into a vortex. If the outer edge of the upper vortex is rotating at a speed of 7 miles an hour, then the rim of the bottom of the vortex will have a velocity approximating 200 miles an hour. This tremendous velocity implies enormous centripetal force in the lower tube, and high vacuum and low temperature. It is to this high vacuum tube that the explosive and disastrous effects upon objects in its path are due. There is abundant evidence to support the view that there is a high vacuum in the central core of the tornado funnel cloud and that there is also an ascending current of considerable violence. The following extract from an interview with Prof. A. Q. Nash, from the Sherman Institute, of Sherman, Tex., concerning the tornado that passed over that city in May, 1896, is quite clear and explicit as to the updraft and whirling motion:

When the cloud passed in front of me it seemed to be going at the speed of a galloping horse. The speed was not so great but that almost anyone running to east or to the west could have got out of the way. The cloud swelled out above the ground, but the top of it was higher than the sides. It seemed to be churning up all that it touched and throwing out the fragments at the top. The shape and action was much like that of a geyser. At the same time, as it moved along the mass had a rotary motion. It whirled round and round in a direction from right over to left, just the reverse of the movements of the hands of a watch.

Only the outlines of the mass could be distinguished. It was impossible to see into it. Houses and other things went up as the cloud reached them, disappearing in the revolving interior. At the top and around the edges I could see things whirling and then falling as they got beyond the edges. The revolving velocity was so great it set the adjacent air in motion, and the lighter things, such as leaves and twigs and bits of pine and particles of mud, circled far outside of the cloud and fell at considerable distances from the path of the cyclone. In the short time I stood there watching the cloud pass I was covered with mud and drenched with muddy water. As the cloud passed the rotary motion could be seen very plainly in the rear.



PLATE XXIX STORM TRACKS AND ABNORMALITIES OF PRESSURE, TEMPERATURE, AND PRECIPITATION, MARCH, 1991, A COLD MONTH.



STORM TRACKS AND ANOMALITIES OF PRESSURE, TEMPERATURE, AND PRECIPITATION, MARCH, 1903. A WARM MONTH EAST OF ROCKY MOUNTAINS. PLATE XXX.

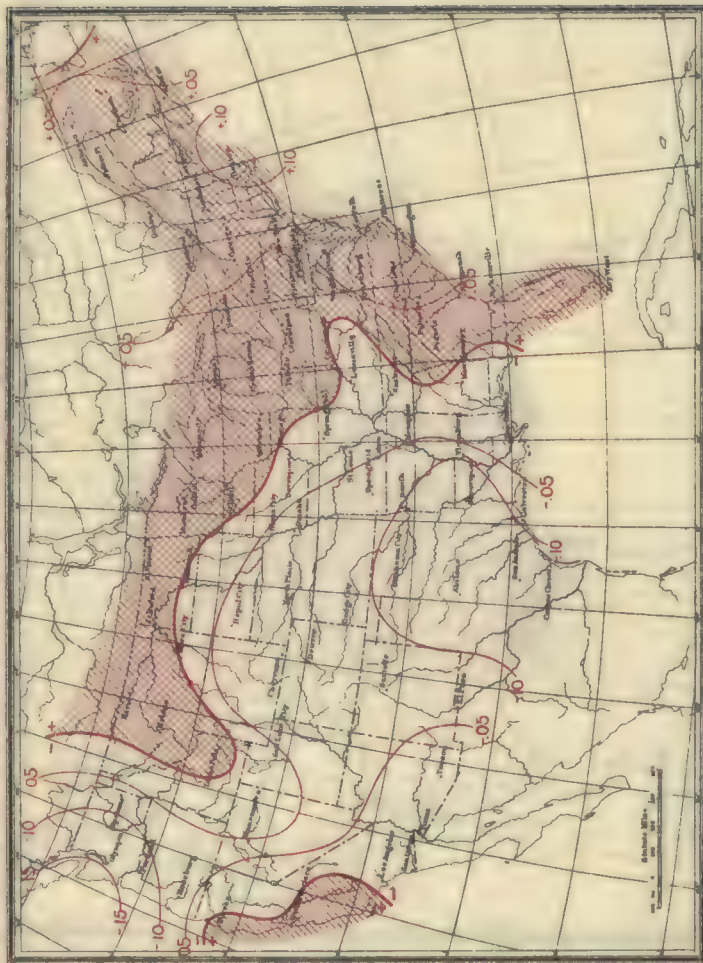




PLATE XXXI. STORM TRACKS AND ABNORMALITIES OF PRESSURE, TEMPERATURE, AND PRECIPITATION, MARCH, 1900, WARM WEST OF ROCKY MOUNTAINS, COLD EAST



PLATE XXXII. STORM TRACKS AND ABNORMALITIES OF PRESSURE, TEMPERATURE, AND PRECIPITATION, MARCH, 1897. COLD WEST. WARM EAST OF ROCKY MOUNTAINS.



SEASONAL VARIATIONS IN THE WEATHER.

It is a common observation that some seasons are abnormally warm, some abnormally cold, some wet, some dry, while still others depart but little from normal conditions. Of the underlying cause or causes of seasonal variations in the weather, very little is known. An examination of the daily weather maps during periods of marked seasonal variation generally discloses the fact that there has been a suspension or complete reversal of one or more of the usual characteristics of the weather for the time and place; it is to these reversals and temporary suspensions that marked and prolonged abnormalities of the weather are due.

In studying seasonal variation of the weather little valuable material is available for ready reference. The monthly means of temperature pressure, the total monthly precipitation, etc., indicate in a general way merely the dominating influence of the month. In the final analysis, however, one should not fail to examine the daily weather charts, since similar monthly mean values do not necessarily represent one and the same type of weather conditions. It may easily happen, for example, that the pressure distribution for any two months may be almost identical, yet the weather of the two months may be quite dissimilar. Monthly mean values, moreover, generally represent the sum total of the various weather conditions. A so-called normal month may be composed of two unequal periods of extreme weather conditions, one cold, the other warm, so that as far as temperature is concerned the monthly values give no idea of the actual weather conditions from day to day. For this and other reasons the subject is difficult of treatment with the material at hand.

On a previous page it was stated that a clearer picture of the prevailing climatic conditions would be obtained by compiling the usual data for two or more periods representing, respectively, cyclonic and anticyclonic weather. It would also be a great help to the better understanding of seasonal variations in the weather if the usual statistics of temperature and rainfall distribution, amount of cloudiness, etc., were classified and arranged according to the several types of weather that prevail in the United States. Such a classification would be quite useful in weather prevision, for some days ahead, since there is a tendency for two or more successive cyclones to pursue approximately the same course during the prevalence of any strongly accentuated type. For the purpose of this discussion it will be sufficient to state that abnormalities in the distribution of temperature and precipitation in any month are rarely of the same sign throughout the United States; in other words, it seldom happens that the month is warm, or cold, as the case may be, in all parts of the country. Usually the dividing line as regards temperature runs north and south; quite frequently the Rocky Mountains form a natural dividing line between the abnormally cold and the abnormally warm portions of the country. Occasionally, on the other hand, the dividing line may run with the parallels of latitude with the area of abnormal cold in the south and abnormal heat in the north.

Abnormalities in the distribution of precipitation are less easily explained than those of temperature. It is possible, in general, to associate periods of excessive or deficient precipitation with certain definite weather types; thus, a movement of cyclones from the west Gulf States to New England invariably produces moderate to heavy precipitation throughout the eastern part of the United States. On the other hand, a tendency to follow the northern boundary is favorable to continued dry weather in the southern two-thirds of the country. In general, a marked excess in temperature is associated with a corresponding deficiency in precipitation, especially in the warm season. The converse, however, does not always hold. A marked example of a cold wet month is shown in Plate XXIX.

Since the month of March is one of the most changeable of the year, the remarks and illustrations which follow refer particularly to that month.

Normal March weather.—In the popular mind, especially among those who dwell in northern latitudes, March is held to be a cold, disagreeable month. This conception is true in a large measure. While March is not productive of severe storms, yet the total wind movement for

the month is generally greater than for any other month in the year. In a group of 28 selected stations, March was the windiest at 9; December at 5; April at 4; February at 3; July, 1; and November 1. February and March equally windy at 4, and March and April equally windy at 1. From this summary it will be seen that the windiest season of the year comes at the time when winter conditions are giving way to those of spring and summer. At this time, viz., in the three months—February, March, and April—the interior of the continent is yet cold, and there are vast masses of cold air in the Arctic Zone and the regions north of the United States that must in time give way or be transformed into air masses of higher temperature and less density. There is a conflict, so to speak, between the masses of cold air in the continental interior and the warmer air of the oceanic area to the westward and the tropical area to the southward, in which the ascendancy is not gained and held by one or the other of the contending forces, but first one and then the other becomes the dominating and controlling force. In the interplay between these two forces the weather in northern districts is alternately warm and cold, with high shifting winds and frequent rains or snows. In the south, which is farther removed from the geographic center of the contending forces, the weather is more constant, with a preponderance of warm, sunshiny weather. Incursions of cold air from the north with killing frosts are not unusual, however, even as late as April.

If all the cyclones for any given month entered the United States in the same region and moved in identical paths it would be a simple matter to determine beforehand the character of the month; if, for example, the North Pacific coast type of cyclone should prevail in March (for description of this type see page 19, Plate II), the month would be one of abundant rainfall in the North Pacific coast States, over the northern plateau, and in the middle Mississippi Valley. The weather would be abnormally warm over the greater portion of the South, with the greatest positive departures in temperature (greatest excess above the normal) in Texas, Oklahoma, and the lower Mississippi Valley, and it would be unseasonably cold over the northern Rocky Mountain region and the Canadian Provinces, for the following reasons: A movement of cyclonic areas in the path followed by North Pacific cyclones induces warm southerly to westerly winds in the territory to the eastward of the central and southern Rocky Mountain slope. The interruption of the southerly winds during the prevalence of a North Pacific type are few and last but a short time. The cold weather in Montana and to the northward would be due to persistent northerly winds, since the path of the North Pacific cyclone passes south of that State. The wind over the northern plateau and along the North Pacific coast would be from a southeasterly quarter and cold, since the interior is yet colder than the coast.

From what has preceded, it may be seen that the following general statements must hold. In the cold season a movement of cyclones eastward or northeastward in low latitudes will cause unusually cold weather in practically all districts east of the Rocky Mountains. A necessary antecedent to the movement in low latitudes is the occupation of the northeastern Rocky Mountain slope by strong anticyclones. These may be compared not inaptly to great reservoirs of cold which discharge to the eastward and southward a mass of chilled air that may, in extreme cases, extend as a "norther" as far south as the western Caribbean Sea. When, on the other hand, cyclones move eastward along the northern boundary in relatively high latitudes, they cause an indraught of warm air from the south, and while the southerly winds are occasionally interrupted by colder northwesterly winds, the cold does not penetrate so far to the southward nor does it persist so long as in the case of areas of low pressure moving eastward in low latitudes. High pressure over the North Atlantic and adjacent shores of the United States, as in March, 1903, may interrupt the normal movement of cyclones and thereby completely reverse the wind circulation over large areas. Thus, cold northwesterly winds over New England and the Middle Atlantic States may be supplanted by relatively warm easterly winds from the Atlantic.

Individual months of marked abnormalities.—Four cases only will be considered; first, a cold March in nearly all parts of the country (1891); second, a warm March in nearly all parts of the country (1903); third, a month that was cold east of the one hundredth meridian and warm to the westward (1900), and finally a month when the reverse conditions obtained (1897).

March, 1891, a cold month: The tracks of cyclones and the abnormalities of pressure, temperature, and precipitation are shown on Plate XXIX. The two marked characteristics of March, 1891, were (1) abnormally low temperatures over nearly the whole country and (2) greatly increased precipitation, except in a few scattered localities. No March in the last thirty-three years has shown such extreme variations from the normal. In March, 1876, the weather conditions, both as to temperature and precipitation, were much similar to those of 1891. March, 1885, was a cold month in all parts of the country, but the movement of highs and lows was different from that in 1891, and there was a marked deficiency in precipitation instead of an excess, as in 1876 and 1891.

The cause of the anomalous conditions in March, 1891, so far as can be gleaned from the daily weather maps, was the persistence and strength of areas of high pressure that had their origin north of Montana and moved slowly southeastward to the Dakotas, thence eastward along the northern boundary to the Lake region, thence either to the Canadian maritime provinces or southeastward to the Middle Atlantic coast. As a consequence of the persistence of areas of high pressure in North Central districts, the areas of low pressure, of which there were a large number, made a wide sweep to the southward before curving to the northeast. This southward movement induced strong northwesterly winds, which brought with them the cold of northern latitudes.

March, 1903, a warm month: The tracks of cyclonic areas and the abnormalities of pressure, temperature, and precipitation for this month are shown on Plate XXX. Examining this plate in detail, it is to be observed, first, that there was a marked decrease in the number of cyclonic areas as compared with the cold month of 1891, and that of the six paths charted but a single one extended to the Atlantic coast. Atmospheric pressure was high almost continually during the month in northern and northeastern districts. During the month 8 anticyclonic areas were charted, most of which originated in the region north of Montana and moved thence east-southeast to the Canadian maritime provinces, at which point 6 of the total number passed eastward over the ocean. The winds over eastern and southern districts were mostly from the east or south. The cloudiness was above the average, and there was little loss of heat by radiation at night. The greatest positive temperature departures centered over Ontario and diminished thence in all directions. The movement of the areas of high pressure in the Northwest, where low temperatures prevailed, was quite similar to that of an average March. It will be observed that, except over the northern Pacific Coast States and the northern Gulf, the pressure was considerably above the normal. It is impossible, of course, to get a very clear idea of the atmospheric movements involved by studying the abnormalities for a limited area over the earth's surface for a single month. The pressure abnormalities for January and February of 1903 show that a wave of rising pressure was advancing from the west; that it became strong in January over the southern Pacific coast and the southern Plateau region; that during February, 1903, the pressure was higher than the average over the interior of the country west of the ninety-fifth meridian, the greatest abnormality being +0.15 inch over the Middle Rocky Mountain region. For the month of March, as shown by Plate XXX, the greatest increase in pressure was over the Canadian maritime provinces, and a region of diminished pressure appears over the northern Pacific Coast States.

The warm March of 1894: The month of March, 1894, was one of the warmest ever experienced east of the Rocky Mountains, yet, paradoxical as it may seem, it gave some very low temperatures during the closing days of the month. The month opened with warm weather in all parts of the country and the mild period lasted about three weeks, during which time there were practically no incursions of cold air from the northwest. The mild weather was largely due to the slow eastward drift of a number of cyclonic areas that first appeared on the Pacific coast north of California. These depressions, in several instances, assumed the trough-like form which, as before stated, is conducive to a marked warming up on the eastern side. The most significant phase of the abnormal conditions, however, was the failure of anticyclonic areas to develop normal intensity in the rear of the cyclones until nearly the end of the month. The Monthly Weather Review, Vol. XXII, pages 100-101, gives the number of areas of high pressure observed in March, 1894, as 19. Of these, however, more than half dissipated shortly

after they appeared. The mild weather was brought to an end by the southward sweep of an anticyclone from the region north of Montana on the 23d, and it was followed by a second, equally as severe, on the 27th.

March, 1900, warm west of the Rocky Mountains, cold east (Plate XXXI): The cold weather east of the Mississippi was due to the fact that many cyclonic areas moved east-northeast in both high and low latitudes and that an unusually large number of anticyclones swept southeastward along the eastern slope of the Rocky Mountains to the middle Mississippi Valley, and thence eastward to the Atlantic. West of the Rocky Mountains, the weather, for the most part, was tranquil and there were no incursions of cold air from higher latitudes, since but a single cyclone traversed that region.

March, 1897, warm east of the Rocky Mountains, cold west (Plate XXXII): In this month the areas of low pressure originated mostly over the eastern slope of the Rocky Mountains, moved thence east-northeastward, and passed out of the country by way of the St. Lawrence Valley. From what has previously been said on the circulation of the air around areas of low pressure, it will be seen that over the Southern States warm air must have been continuously drifting in from slightly lower latitudes and that the supply of warm air would be carried northeastward along the Atlantic coast as far as southern New England. It will be observed that the excess of temperature extended even farther north, into western Ontario. The number of anticyclones charted for March, 1897, was somewhat less than the average and their movement was generally from Manitoba southeastward to the Middle Atlantic coast. In but one instance did an area of low pressure move southeastward over the Rocky Mountains to the Gulf coast. This movement of the highs across the Lake region was also instrumental in causing warm weather in eastern and southern districts.

From the foregoing it will be readily seen that the key to the situation lies very largely in the control, extraterrestrial or otherwise, of the development and movement of cyclones and anticyclones. Any means whereby we can definitely locate the mean positions of areas of low pressure and areas of high pressure will in turn enable us to foresee the prevailing direction of the winds, and thus the character of the weather over any given area.

The fact that abnormalities of temperature and precipitation over the Northern Hemisphere are more or less local seems to militate against the theory of extraterrestrial control, since it is difficult to conceive that any outside force or source of energy would not act continuously and in the same direction over the whole of the earth's surface. It does not seem probable that any cosmic or extraterrestrial influence can be so localized as to produce the abnormalities in temperature, pressure, and precipitation shown on Plates XXIX to XXXII.

A better knowledge of the constitution of cyclones and anticyclones, especially of the source of energy that manifests itself in the gradual building up and persistence of cyclones and anticyclones, would doubtless aid in the solution of the problem. So, too, an extension of the field of observation over the unoccupied portions of the globe would add to the facts now in our possession, and possibly present the problem in a new light.

The recent extension of military telegraph lines over Alaska and the laying of a submarine cable by the U. S. Signal Corps connecting that Territory with the United States promise to yield important results in connection with the study of atmospheric movements across the continent.

As a result of the observations made at telegraph stations in Alaska during the winter of 1905-6, some remarkable temperature variations between the interior of Alaska and the northern Rocky Mountain region, including the southern portions of Alberta, Assiniboia, and Winnipeg, are shown. Thus during the severe weather of March, 1906, when temperatures 10° to 20° below zero prevailed in the last-named regions, the weather in Alaska was warm and pleasant, with temperatures above freezing in the lower Yukon Valley and about freezing in the vicinity of Eagle (longitude 141° west from Greenwich).

It is probable that the warm weather in Alaska was due to a temporary extension of the Bering Sea low eastward far into the interior. The explanation of this and other related problems will doubtless be apparent when the field of view is enlarged so as to take in the whole of the North American continent.

GENERAL TABLES.

GENERAL TABLES.

TABLE I.—MONTHLY AND ANNUAL MEAN TEMPERATURES FOR SELECTED STATIONS.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of rec- ord.	Temperature.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>New England and Middle Atlantic States.</i>	° /	° /	Feet.		° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Eastport.....	44 54	66 59	33	31	20	22	29	39	48	55	60	61	56	47	37	26	42
Portland.....	43 39	70 15	47	32	22	24	32	43	54	63	68	67	60	49	38	27	46
Boston.....	42 21	71 4	15	31	27	28	35	45	57	66	72	70	63	53	42	32	49
Block Island.....	41 10	71 36	28	23	31	31	36	44	52	62	68	68	64	54	46	36	49
New Haven.....	41 18	72 56	25	31	28	29	35	46	58	66	72	70	64	53	41	32	50
Buffalo.....	42 53	78 53	612	33	25	24	30	42	54	65	70	68	62	51	39	30	47
Rochester.....	43 8	77 42	498	33	24	24	31	45	57	66	71	69	63	51	39	29	47
Oswego.....	43 29	76 35	292	33	24	24	31	43	54	64	70	68	62	51	39	28	45
Albany.....	42 39	73 45	23	31	23	24	33	46	59	68	73	71	64	51	39	28	48
New York City.....	40 43	74 0	37	33	30	31	38	48	60	69	74	73	66	56	44	34	52
Erie.....	42 7	80 5	659	30	27	27	33	45	57	66	71	69	64	53	41	31	49
Pittsburg.....	40 32	80 2	738	31	31	33	39	51	63	71	75	73	67	56	43	35	53
Philadelphia.....	39 57	75 9	42	31	32	34	40	51	62	72	76	74	68	57	45	36	54
Atlantic City.....	39 22	74 25	7	28	33	33	38	47	57	67	72	72	67	57	45	36	54
Baltimore.....	39 18	76 37	103	31	34	35	42	53	64	73	78	76	68	58	46	37	55
Washington.....	38 54	77 3	75	33	33	35	42	53	64	73	77	75	68	57	45	36	55
Lynchburg.....	37 25	79 9	623	33	37	39	46	56	66	74	78	77	69	58	47	40	57
Norfolk.....	36 51	76 17	10	33	41	43	48	56	67	74	79	77	71	61	51	43	59
<i>South Atlantic and East Gulf States.</i>																	
Charlotte.....	35 13	80 51	748	25	41	44	51	59	69	76	79	77	72	61	51	43	60
Wilmington.....	34 14	77 57	37	33	47	49	55	61	70	77	80	79	74	64	55	49	63
Charleston.....	32 47	79 56	11	33	50	52	58	65	73	79	82	81	76	67	58	51	66
Atlanta.....	33 45	84 23	1,052	25	46	46	52	61	70	76	78	77	72	62	52	44	61
Augusta.....	33 28	81 54	138	32	47	50	56	64	72	79	81	80	75	65	55	48	64
Jacksonville.....	30 20	81 39	3	32	55	58	63	68	75	80	82	82	78	71	62	56	69
Key West.....	24 34	81 49	3	33	70	71	73	76	79	82	84	84	85	79	74	70	77
Pensacola.....	30 25	87 13	12	24	52	56	60	67	74	80	81	81	78	70	60	54	68
Montgomery.....	32 23	86 18	196	31	48	51	58	65	74	80	82	81	76	66	56	49	65
Mobile.....	30 41	88 2	12	33	50	54	59	67	74	80	81	81	77	68	58	53	67
Vicksburg.....	32 22	90 53	226	32	48	52	58	66	73	80	82	81	76	66	56	50	65
<i>West Gulf States and Southeastern Rocky Mountain slope.</i>																	
Little Rock.....	34 45	92 6	299	24	41	44	53	63	70	77	81	79	73	63	51	44	62
Shreveport.....	32 30	93 40	297	32	46	50	58	66	74	80	83	82	76	66	56	49	66
New Orleans.....	29 58	90 4	8	33	54	57	63	69	75	81	83	82	79	70	61	55	69
Palestine.....	31 45	95 40	495	22	47	51	58	67	72	79	82	82	76	67	57	51	66
El Paso.....	31 47	106 30	3,702	25	45	49	56	64	72	80	81	79	73	63	52	46	63
San Antonio.....	29 27	98 28	660	18	52	55	62	70	75	81	83	83	78	70	60	55	69
Galveston.....	29 18	94 50	6	33	53	56	62	69	76	82	84	83	79	72	63	57	70
<i>North Central district.</i>																	
Bismarck.....	46 47	100 38	1,670	29	7	9	22	43	55	64	70	68	57	44	26	15	40
Moorhead.....	46 52	96 44	907	23	2	6	21	42	54	64	68	66	55	44	26	12	37
St. Paul.....	44 58	93 3	758	31	12	16	29	48	60	66	74	72	62	50	32	20	45
Marquette.....	46 34	87 24	656	33	16	17	24	38	49	59	65	64	56	46	32	23	41
Alpena.....	45 5	83 30	591	31	19	18	25	38	50	60	66	64	57	46	34	24	42
Detroit.....	42 20	83 3	593	33	24	25	33	46	58	67	72	70	63	52	38	29	48
Milwaukee.....	43 2	87 54	619	33	20	22	31	43	54	64	70	69	61	50	35	25	45
La Crosse.....	43 49	91 15	673	31	16	19	31	48	60	69	73	71	62	50	34	23	46
Huron.....	44 21	98 14	1,287	22	11	12	28	47	57	67	72	70	61	48	■	19	44

TABLE I.—MONTHLY AND ANNUAL MEAN TEMPERATURES FOR SELECTED STATIONS—Continued.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperature.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>North Central district—Continued.</i>	°	'	Feet.		°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
North Platte	41 8	100 45	2,803	29	24	25	35	49	59	68	74	72	63	50	45	27	46
Omaha	41 16	95 56	1,037	33	21	25	36	52	62	72	76	74	66	54	38	27	50
Des Moines	41 35	93 37	808	25	20	23	35	51	61	70	75	73	65	53	37	26	49
Davenport	41 30	90 38	580	32	21	24	35	50	61	71	75	73	65	53	38	27	50
Keokuk	40 22	91 26	574	32	24	28	38	52	63	72	77	75	67	55	39	30	52
Dodge City	37 45	100 0	2,490	29	28	32	42	54	64	73	78	77	68	56	41	33	54
St. Louis	38 38	90 12	466	31	32	34	44	57	66	76	80	78	70	59	44	36	56
Chicago	41 53	87 37	595	31	24	26	34	46	57	66	72	71	64	53	39	29	48
Springfield, Ill.	39 48	89 39	607	24	27	29	39	53	63	72	76	74	63	56	42	32	52
Calro	37 0	89 10	313	32	30	38	47	59	68	75	79	78	70	60	47	39	56
Indianapolis	39 46	86 10	711	32	28	31	39	52	63	72	76	74	67	55	42	33	53
Toledo	41 40	83 34	597	30	26	27	35	48	59	69	73	71	64	53	40	30	50
Cleveland	41 30	81 42	659	33	27	27	34	46	58	67	72	70	64	53	40	31	49
Columbus	39 58	83 0	779	25	29	31	39	51	63	71	75	73	66	55	42	33	52
Cincinnati	39 6	84 30	553	32	32	35	43	54	65	74	78	76	69	57	44	36	55
Louisville	38 15	85 45	460	31	35	37	45	56	67	75	79	77	70	59	46	38	57
Knoxville	35 56	83 38	992	33	38	41	48	58	68	73	76	75	69	58	47	39	57
Nashville	36 10	86 47	459	33	38	41	49	59	68	76	80	78	71	60	48	41	59
Memphis	35 9	90 3	268	33	41	44	52	62	71	78	81	80	73	63	51	43	62
Chattanooga	35 4	85 14	700	25	41	44	51	60	68	76	79	77	72	62	50	43	60
<i>Rocky Mountain and Plateau region.</i>																	
Boise	43 37	116 8	2,706	18	29	34	44	50	58	66	73	72	61	50	40	33	51
Helena	46 34	112 4	4,109	24	19	22	32	44	52	59	67	66	56	46	32	25	43
Cheyenne	41 8	104 48	6,056	33	25	26	32	41	52	61	67	66	57	46	35	29	45
Denver	39 45	105 0	5,219	31	29	32	39	48	57	67	72	71	63	51	39	33	50
Santa Fe	35 41	105 57	6,980	30	29	32	40	47	56	66	69	68	61	51	39	31	49
Winnemucca	40 58	117 43	4,287	26	27	33	40	47	54	63	71	70	60	48	37	32	48
Salt Lake City	40 46	111 54	4,293	30	28	33	42	50	58	67	76	75	64	52	40	33	52
Yuma	32 45	114 36	137	28	54	59	64	70	77	85	92	91	84	73	62	56	72
<i>Pacific coast States.</i>																	
Spokane	47 40	117 25	1,881	23	26	30	40	48	56	62	69	68	58	48	37	30	48
Portland	45 32	122 43	20	32	39	42	47	51	57	62	67	66	61	54	46	42	53
Roseburg	43 13	123 20	475	26	41	43	47	51	57	61	66	66	61	54	46	42	53
San Francisco	37 48	122 26	15	32	50	52	54	55	57	59	59	59	61	60	56	51	56
San Diego	32 43	117 10	40	32	54	55	56	60	62	65	68	70	66	64	59	56	61
Redbluff	40 10	122 15	309	26	45	49	55	59	67	75	82	81	73	64	54	47	63
Los Angeles	34 3	118 15	286	26	54	55	57	60	63	67	71	72	70	64	60	56	62

TABLE II.—ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES FOR SELECTED STATIONS, WITH YEAR OF OCCURRENCE, 1871-1903.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.	Absolute range.	No. of year's record.
	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.	Temperature.
<i>New England and Middle Atlantic States.</i>															
Pastport:	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Maximum.....	54 1892	52 1903	54 1889	72 1886	85 1896	88 1888	93 1901	90 1893	89 1897	83 1898	64 1882	54 1897	93	114	31
Minimum.....	-20 1874	-20 1876	-8 1886	2 1874	28 1882	30 1875	45 1882	45 1880	35 1875	24 1891	-13 1875	-21 1884	-21		
Portland:															
Maximum.....	62 1890	58 1880	71 1894	78 1881	94 1880	96 1888	97 1898	95 1876	94 1881	84 1897	69 1895	60 1885	97	114	32
Minimum.....	-15 1887	-15 1894	-7 1872	14 1874	30 1890	42 1891	48 1899	46 1894	33 1888	26 1889	-6 1875	-17 1872	-17		
Boston:															
Maximum.....	70 1876	64 1890	72 1880	85 1872	97 1880	98 1874	101 1880	97 1900	102 1881	90 1881	75 1876	66 1899	101	114	33
Minimum.....	-13 1882	-11 1896	-8 1872	11 1874	31 1882	42 1884	46 1874	47 1880	34 1879	25 1879	-2 1875	-12 1883	-13		
Block Island:															
Maximum.....	59 1885	58 1890	59 1891	71 1896	82 1895	86 1893	88 1892	89 1900	86 1881	75 1881	70 1881	60 1884	89	93	23
Minimum.....	-4 1896	-4 1895	6 1886	25 1887	31 1900	46 1898	52 1895	49 1899	42 1883	33 1884	14 1901	-3 1884	-4		
New Haven:															
Maximum.....	65 1890	67 1890	69 1880	85 1896	93 1896	96 1893	97 1898	98 1900	100 1881	86 1881	72 1900	68 1889	100	114	31
Minimum.....	-14 1873	-11 1896	0 1885	16 1874	30 1882	41 1884	49 1891	45 1885	32 1888	24 1879	2 1875	-10 1884	-14		
Buffalo:															
Maximum.....	66 1874	64 1883	72 1875	84 1899	89 1889	93 1895	95 1897	94 1897	95 1900	86 1898	70 1891	64 1901	95	109	31
Minimum.....	-14 1884	-13 1895	-4 1885	11 1881	28 1891	39 1891	47 1898	44 1880	35 1878	24 1887	2 1875	-9 1880	-14		
Rochester:															
Maximum.....	69 1874	65 1890	77 1894	90 1885	93 1895	95 1894	99 1897	97 1893	98 1881	87 1900	73 1888	70 1875	99	113	32
Minimum.....	-14 1904	-12 1875	-7 1872	11 1879	28 1880	36 1879	45 1898	43 1884	34 1879	19 1879	1 1875	-11 1871	-14		
Oswego:															
Maximum.....	64 1890	61 1880	72 1894	85 1885	94 1879	98 1875	100 1878	98 1883	93 1881	84 1891	71 1876	66 1901	100	123	33
Minimum.....	b-23 1885	-18 1896	-11 1872	13 1874	28 1885	39 1885	45 1885	44 1884	36 1888	24 1887	-1 1875	-18 1884	-23		
Albany:															
Maximum.....	62 1889	63 1903	75 1894	88 1896	93 1900	99 1901	100 1898	98 1900	97 1895	90 1900	70 1876	66 1893	100	118	30
Minimum.....	-18 1878	-18 1875	-8 1900	13 1874	29 1876	40 1878	48 1876	45 1875	33 1879	23 1876	-10 1875	-17 1875	-18		
New York City:															
Maximum.....	67 1890	69 1890	72 1879	90 1896	95 1895	97 1899	99 1898	96 1888	100 1881	88 1881	74 1882	68 1891	100	106	32
Minimum.....	-6 1875	-6 1899	3 1872	20 1874	34 1880	47 1878	50 1873	51 1885	36 1872	31 1876	7 1875	-6 1880	-6		
Erie:															
Maximum.....	73 1876	70 1900	78 1875	86 1883	91 1879	92 1894	94 1890	94 1887	a 92 1887	87 1900	74 1888	70 1889	94	110	30
Minimum.....	-15 1875	-16 1875	-1 1886	11 1881	31 1874	40 1894	47 1891	47 1887	36 1894	23 1895	6 1880	-11 1880	-16		
Pittsburg:															
Maximum.....	75 1874	77 1900	80 1876	90 1896	95 1887	98 1895	103 1881	100 1881	102 1881	91 1879	79 1876	73 1885	103	123	31
Minimum.....	-12 1879	-20 1899	1 1900	14 1875	27 1876	39 1879	49 1894	45 1890	35 1893	20 1887	4 1880	-9 1880	-20		
Philadelphia:															
Maximum.....	72 1890	75 1874	77 1894	93 1896	96 1880	98 1893	103 1901	101 1900	102 1881	88 1897	77 1876	70 1873	103	109	33
Minimum.....	-5 1875	-6 1899	6 1885	18 1874	36 1891	47 1884	54 1891	51 1890	40 1888	31 1873	8 1875	-5 1880	-6		
Atlantic City:															
Maximum.....	64 1890	71 1880	77 1894	84 1887	90 1900	95 1887	99 1880	98 1900	94 1897	86 1897	74 1900	68 1889	99	106	28
Minimum.....	-4 1893	-7 1879	8 1884	19 1875	33 1880	45 1878	52 1890	48 1890	37 1888	29 1879	10 1875	-7 1880	-7		
Baltimore:															
Maximum.....	73 1890	78 1874	c 82 1894	94 1896	96 1896	99 1901	104 1898	100 1900	101 1881	90 1897	79 1900	65 1901	104	111	31
Minimum.....	-6 1881	-7 1899	5 1873	23 1875	34 1876	47 1894	55 1891	51 1890	39 1888	30 1879	15 1880	-3 1880	-7		
Washington:															
Maximum.....	76 1890	78 1874	83 1894	93 1896	96 1880	102 1874	103 1887	101 1900	104 1881	92 1881	80 1879	73 1873	103	118	33
Minimum.....	-14 1881	-15 1899	4 1873	22 1875	34 1876	43 1897	52 1895	49 1890	38 1879	26 1893	12 1880	-13 1880	-15		
Lynchburg:															
Maximum.....	77 1890	75 1874	86 1894	95 1896	97 1895	98 1887	102 1881	100 1900	d 99 1897	92 1897	81 1890	73 1889	102	108	31
Minimum.....	-6 1893	-3 1899	14 1899	25 1881	34 1891	45 1889	53 1899	47 1890	35 1888	28 1893	13 1880	-5 1880	-6		
Norfolk:															
Maximum.....	80 1871	82 1890	88 1894	95 1896	98 1880	102 1874	e 102 1887	100 1900	100 1895	89 1884	80 1888	75 1891	102	100	33
Minimum.....	6 1893	2 1895	14 1888	24 1880	38 1876	49 1894	57 1892	56 1888	40 1888	31 1876	20 1872	6 1880	2		

a Occurred also in 1881.

b Estimated.

c Occurred also in 1890.

d Occurred also in 1895.

e Occurred also in 1876.

TABLE II.—ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES FOR SELECTED STATIONS, WITH YEAR OF OCCURRENCE, 1871-1903—Continued.

	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.		Absolute range.		No. of years.	
	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Annual.	Absolute range.	No. of years.	rd		
South Atlantic and East Gulf States.																														
Charlotte:																														
Maximum.....	77	1890	79	1890	85	1894	94	1896	97	1885	102	1887	102	1887	100	1881	99	1896	92	1884	80	1879	76	1890	102			107	25	
Minimum.....	- 1	1886	- 5	1899	14	1899	26	1891	38	1889	45	1889	55	1891	53	1887	38	1888	30	1879	18	1880	- 5	1880	- 5					
Wilmington:																														
Maximum.....	80	1890	81	1880	87	1894	90	1880	97	1889	100	1890	103	1879	99	1878	96	1872	92	1884	80	1877	78	1879	103			98	33	
Minimum.....	9	1884	5	1899	20	1873	28	1875	38	1876	51	1894	58	1890	56	1874	42	1887	32	1876	20	1872	10	1880	5					
Charleston:																														
Maximum.....	80	1879	80	1891	86	1897	89	1896	98	1898	100	1877	104	1879	100	1899	95	1899	93	1883	83	1899	78	1880	104			97	31	
Minimum.....	10	1886	7	1899	25	1890	32	1881	45	1894	51	1889	64	1894	62	1879	49	1887	39	1873	28	1881	13	1890	7					
Atlanta:																														
Maximum.....	75	1890	78	1891	83	1895	89	1896	94	1898	98	1895	100	1887	98	1900	97	1896	91	1884	82	1890	72	1899	100			106	25	
Minimum.....	- 2	1886	- 8	1899	8	1899	25	1888	38	1898	39	1889	58	1886	55	1891	43	1899	30	1887	16	1887	1	1880	- 8					
Augusta:																														
Maximum.....	80	1890	84	1890	89	1882	93	1896	100	1878	103	1887	105	1878	105	1878	101	1896	94	1884	85	1885	78	1890	105			102	31	
Minimum.....	6	1886	3	1899	14	1899	29	1887	41	1894	46	1889	56	1899	58	1896	41	1888	29	1873	23	1892	7	1899	3					
Jacksonville:																														
Maximum.....	81	1898	86	1891	88	1896	92	1896	98	1878	100	1891	104	1879	101	1900	98	1875	92	1883	86	1889	81	1875	104			94	32	
Minimum.....	15	1886	10	1899	26	1899	34	1891	46	1894	54	1889	66	1892	64	1890	49	1897	40	1873	26	1887	14	1894	10					
Key West:																														
Maximum.....	90	1877	87	1874	89	1874	91	1881	93	1881	100	1886	100	1886	100	1886	97	1886	92	1876	91	1876	88	1876	100			50	33	
Minimum.....	41	1886	44	1899	48	1890	54	1891	63	1877	69	1887	68	1888	68	1894	69	1893	59	1892	52	1873	44	1876	41					
Pensacola:																														
Maximum.....	79	1890	78	1883	83	1884	92	1887	93	1881	101	1894	103	1901	97	1897	95	1900	95	1884	81	1882	76	1890	103			98	24	
Minimum.....	15	1886	7	1899	25	1890	34	1881	44	1898	55	1889	64	1882	62	1891	54	1890	38	1887	28	1881	14	1894	7					
Montgomery:																														
Maximum.....	79	1898	83	1891	87	1896	92	1899	98	1875	106	1881	107	1881	103	1874	99	1887	96	1884	85	1896	79	1889	107			112	31	
Minimum.....	5	1886	- 5	1899	21	1890	30	1881	43	1898	48	1889	61	1898	58	1891	45	1899	31	1873	21	1872	8	1890	- 5					
Mobile:																														
Maximum.....	78	1882	80	1887	85	1879	90	1883	98	1878	101	1894	102	1901	101	1897	96	1887	93	1884	83	1888	79	1884	102			103	33	
Minimum.....	11	1886	- 1	1899	25	1890	32	1881	46	1889	50	1889	64	1882	57	1891	49	1896	34	1873	25	1887	14	1890	- 1					
Vicksburg:																														
Maximum.....	82	1890	83	1883	87	1900	92	1887	95	1876	101	1881	100	1901	100	1878	98	1881	94	1884	86	1896	79	1889	101			102	31	
Minimum.....	3	1886	- 1	1899	24	1892	31	1881	46	1877	52	1889	62	1881	54	1891	42	1896	34	1887	22	1891	12	1880	- 1					
West Gulf States and Southern Rocky Mountain Slope.																														
Little Rock:																														
Maximum.....	78	1880	79	1904	87	1895	94	1880	93	1886	102	1894	106	1901	105	1896	100	1896	93	1897	82	1879	78	1889	106			118	24	
Minimum.....	- 5	1886	- 12	1899	16	1893	28	1886	44	1889	51	1889	60	1894	52	1891	41	1896	32	1888	10	1880	6	1880	- 12					
Shreveport:																														
Maximum.....	80	1898	81	1897	90	1882	96	1887	101	1886	104	1875	107	1875	106	1896	101	1899	95	1883	86	1896	79	1896	107			112	31	
Minimum.....	1	1886	- 5	1899	22	1890	32	1881	46	1892	55	1889	62	1899	54	1891	45	1896	31	1873	18	1880	10	1890	- 5					
New Orleans:																														
Maximum.....	82	1890	82	1890	84	1899	88	1889	93	1898	98	1897	102	1901	99	1897	96	1900	91	1897	85	1888	81	1894	102			95	33	
Minimum.....	15	1886	7	1899	30	1890	38	1881	53	1891	58	1889	67	1892	63	1891	55	1901	40	1873	30	1891	20	1880	7					
Palestine:																														
Maximum.....	81	1903	83	1904	88	1904	92	1893	93	1896	100	1896	103	1894	104	1897	104	1896	97	1898	87	1888	81	1880	104			110	22	
Minimum.....	0	1886	- 6	1899	20	1890	30	1886	43	1892	52	1892	62	1898	54	1891	43	1899	34	1898	20	1887	8	1894	- 6					
El Paso:																														
Maximum.....	77	1890	86	1904	89	1896	98	1879	105	1886	113	1883	112	1886	110	1884	104	1879	94	1879	85	1899	78	1899	113			118	25	
Minimum.....	5	1881	5	1899	21	1880	29	1882	40	1884	49	1901	56	1880	52	1880	42	1880	28	1882	11	1880	- 5	1880	- 5					
San Antonio:																														
Maximum.....	82	1898	90	1886	97	1899	99	1894	104	1879	103	1883	106	1894	108	1877	103	1893	99	1877	89	1898	86	1880	108			104	25	
Minimum.....	6	1886	4	1899	21	1890	35	1886	46	1889	53	1877	58	1878	57	1891	46	1890	37	1888	21	1880	10	1880	4					
Galveston:																														
Maximum.....	75	1882	76	1892	85	1879	85	1878	91	1875	97	1875	98	1901	98	1874	94	1900	91	1900	85	1886	77	1894	98			99	32	
Minimum.....	11	1886	8	1899	30	1890	43	1886	54	1892	61	1892	67	1887	68	1899	56	1890	44	1898	29	1880	18	1880	8					

a Occurred also in 1887.

b Occurred also in 1882.

c Occurred also in 1891.

d Occurred also in 1889.

e Occurred also in 1873.

f Occurred also in 1874.

g Occurred also in 1894.

h Occurred also in 1

TABLE II.—ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES FOR SELECTED STATIONS, WITH YEAR OF OCCURRENCE, 1871-1903—Continued.

	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.		Absolute range.		No. of years recorded.
	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Annual.	° F.	° F.		
North Central district.																													
Bismarck:	° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.	° F.	
Maximum.....	52	1901	64	1895	72	1895	90	1900	94	1900	99	1883	106	1901	105	1900	102	1897	89	1897	73	1887	64	1890	106	150	29		
Minimum.....	-44	1887	-43	1887	-36	1897	-3	1899	20	1888	31	1888	32	1884	32	1895	10	1876	-2	1895	-28	1875	-38	1879	-44				
Moorhead:																													
Maximum.....	46	1889	59	1896	68	1889	91	1891	96	1887	101	1893	102	1894	100	1886	98	1894	90	1897	72	1887	55	1883	102	150	23		
Minimum.....	-48	1887	-47	1888	-32	1897	-13	1881	14	1890	28	1888	39	1889	32	1886	17	1883	3	1895	-26	1896	-36	1887	-48				
St. Paul:																													
Maximum.....	51	1900	61	1896	76	1894	84	1887	94	1874	96	1901	104	1901	100	1896	96	1885	87	1879	74	1893	58	1888	104	145	31		
Minimum.....	-41	1888	-33	1899	-22	1873	7	1874	24	1875	36	1885	45	1895	40	1891	28	1899	12	1887	-24	1875	-39	1879	-41				
Marquette:																													
Maximum.....	56	1880	69	1877	70	1878	87	1891	98	1895	98	1901	108	1901	98	1886	97	1874	87	1879	69	1886	59	1875	108	135	29		
Minimum.....	-26	1881	-27	1875	-16	1884	3	1875	22	1875	31	1881	38	1886	33	1885	28	1883	12	1887	-9	1875	-20	1880	-27				
Alpena:																													
Maximum.....	52	1880	59	1900	77	1894	79	1891	95	1895	97	1874	98	1901	95	1900	94	1897	87	1891	67	1886	56	1875	98	125	31		
Minimum.....	-27	1882	-27	1881	-19	1884	-2	1881	22	1883	34	1881	40	1891	39	1888	28	1896	15	1887	-4	1880	-15	1880	-27				
Detroit:																													
Maximum.....	66	1890	64	1884	75	1875	85	1896	95	1895	96	1895	101	1887	99	1881	97	1874	88	1897	70	1888	65	1875	101	125	33		
Minimum.....	-18	1904	-20	1875	-7	1872	8	1875	29	1891	38	1875	48	1895	45	1875	30	1899	22	1873	0	1880	-24	1872	-24				
Milwaukee:																													
Maximum.....	59	1874	60	1882	70	1878	86	1899	92	1895	95	1890	100	1901	98	1874	95	1897	88	1897	70	1888	63	1877	100	125	33		
Minimum.....	-25	1875	-24	1885	-8	1884	12	1886	25	1875	38	1894	47	1895	42	1875	30	1899	15	1887	-14	1875	-22	1884	-25				
La Crosse:																													
Maximum.....	59	1874	65	1882	78	1894	86	1895	96	1874	98	1901	104	1901	101	1894	97	1895	88	1897	72	1893	61	1889	104	147	31		
Minimum.....	-43	1873	-34	1875	-23	1873	10	1881	29	1875	33	1897	46	1895	39	1891	24	1899	6	1887	-21	1875	-37	1872	-43				
Huron:																													
Maximum.....	64	1900	68	1896	79	1894	94	1887	96	1886	99	1898	108	1894	108	1901	103	1895	94	1892	77	1893	65	1894	108	151	22		
Minimum.....	-43	1887	-37	1899	-25	1897	7	1899	22	1889	31	1894	41	1891	33	1886	18	1899	3	1895	-28	1887	-34	1884	-43				
North Platte:																													
Maximum.....	70	1880	74	1896	86	1879	93	1887	97	1895	101	1876	107	1877	103	1878	101	1895	90	1900	81	1887	70	1890	107	142	29		
Minimum.....	-35	1888	-35	1899	-21	1880	12	1875	25	1889	33	1876	42	1889	40	1893	21	1876	9	1887	-25	1887	-30	1901	-35				
Omaha:																													
Maximum.....	63	1895	78	1896	85	1895	90	1891	97	1895	100	1901	106	1894	105	1874	102	1895	92	1899	80	1887	71	1890	106	138	31		
Minimum.....	-32	1884	-26	1899	-7	1880	6	1881	28	1875	42	1877	50	1895	44	1886	30	1873	15	1878	-14	1887	-17	1884	-32				
Des Moines:																													
Maximum.....	64	1895	70	1896	88	1895	90	1898	94	1895	101	1886	109	1901	103	1881	99	1899	91	1899	76	1897	69	1889	109	139	25		
Minimum.....	-30	1884	-24	1899	-8	1890	11	1881	28	1885	37	1889	48	1895	40	1891	26	1899	14	1887	-10	1891	-20	1886	-30				
Davenport:																													
Maximum.....	63	1897	67	1882	82	1895	87	1901	90	1887	98	1897	106	1901	98	1894	99	1899	90	1897	78	1888	65	1889	106	129	31		
Minimum.....	-27	1884	-23	1899	-8	1890	14	1886	29	1875	39	1889	49	1891	44	1884	28	1899	17	1887	-10	1891	-22	1886	-23				
Keokuk:																													
Maximum.....	69	1894	70	1891	84	1895	88	1895	92	1874	100	1901	108	1901	102	1873	99	1899	92	1897	79	1888	69	1889	108	132	32		
Minimum.....	-24	1884	-22	1895	-6	1890	14	1899	29	1875	43	1889	50	1892	47	1891	30	1899	20	1895	-3	1872	-22	1872	-24				
Dodge City:																													
Maximum.....	74	1902	83	1904	90	1895	93	1893	101	1896	106	1893	108	1876	104	1900	01	1896	94	1889	84	1888	79	1894	108	134	29		
Minimum.....	-20	1883	-26	1899	-8	1880	13	1881	24	1893	40	1879	50	1877	46	1891	30	1895	10	1878	-13	1887	-15	1876	-26				
St. Louis:																													
Maximum.....	74	1890	78	1890	85	1895	91	1899	94	1895	102	1901	107	1901	106	1881	102	1899	91	1897	82	1879	74	1875	107	129	33		
Minimum.....	-22	1884	-16	1899	3	1899	22	1875	32	1875	44	1894	55	1891	52	1887	37	1899	24	1887	5	1872	-17	1872	-22				
Chicago:																													
Maximum.....	65	1876	63	1876	80	1895	88	1899	94	1895	98	1872	103	1901	98	1881	98	1899	87	1897	75	1888	68	1875	103	126	31		
Minimum.....	-20	1897	-21	1899	-12	1873	17	1881	27	1875	40	1894	50	1895	47	1872	32	1899	14	1887	-2	1872	-23	1872	-23				
Springfield, Ill.:																													
Maximum.....	68	1890	72	1882	84	1895	88	1899	92	1895	98	1901	107	1901	98	1886	99	1899	91	1897	77	1887	67	1889	107	129	24		
Minimum.....	-22	1884	-21	1899	2	1899	19	1899	34	1895	40	1894	49	1891	48	1891	31	1899	20	1887	2	1898	-14	1880	-22				

^a Occurred also in 1876.^b Occurred also in 1881.^c Occurred also in 1895.

TABLE II.—ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES FOR SELECTED STATIONS, WITH YEAR OF OCCURRENCE.
1871-1903—Continued.

	Janu- ary.		Febru- ary.		March.		April.		May.		June.		July.		Aug- ust.		Sep- tember.		Octo- ber.		Nov- ember		De- cember		Annual	Absolute range	No. of year's re- cord.	
	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.	Temper- ature.	Year.				
North Central district— Continued.																												
Cairo:	° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.			
Maximum.....	73	1890	75	1890	84	1879	89	1872	92	1874	98	1901	106	1901	103	1881	97	1899	90	1907	80	1882	74	1890	106		122	42
Minimum.....	-16	1884	-14	1899	6	1899	24	1875	37	1875	46	1889	57	1891	52	1891	36	1899	24	1873	7	1872	-7	1872	-16			
Indianapolis:																												
Maximum.....	70	1890	72	1883	82	1895	87	1896	96	1895	100	1895	106	1901	101	1881	98	1899	89	1897	76	1888	68	1875	106		131	30
Minimum.....	-25	1884	-18	1899	0	1899	19	1875	31	1877	39	1894	48	1885	46	1890	30	1890	22	1895	-5	1890	-15	1876	-25			
Toledo:																												
Maximum.....	71	1890	67	1900	75	1894	88	1899	93	1895	99	1872	99	1897	102	1871	95	1881	90	1907	74	1888	70	1899	102		118	33
Minimum.....	-16	1897	-16	1885	-3	1873	12	1875	30	1876	41	1894	49	1891	44	1888	30	1899	21	1887	5	1890	-15	1872	-16			
Cleveland:																												
Maximum.....	70	1874	72	1883	76	1875	87	1899	92	1879	96	1874	97	1897	99	1881	98	1881	87	1879	74	1898	68	1875	99		116	32
Minimum.....	-17	1873	-16	1899	-4	1885	15	1875	28	1876	38	1894	48	1895	46	1890	36	1887	24	1887	0	1890	-12	1890	-17			
Columbus:																												
Maximum.....	67	1890	72	1883	79	1895	80	1896	96	1895	99	1895	104	1901	98	1881	98	1899	90	1907	77	1885	67	1890	104		124	25
Minimum.....	-20	1884	-20	1899	0	1900	15	1881	33	1897	41	1894	50	1890	42	1887	32	1888	20	1897	-5	1890	-12	1890	-20			
Cincinnati:																												
Maximum.....	71	1890	73	1883	84	1895	87	1896	94	1875	98	1874	105	1901	101	1881	99	1899	94	1895	78	1895	72	1875	105		122	33
Minimum.....	-12	1886	-17	1899	1	1873	18	1875	33	1897	39	1889	53	1885	51	1890	35	1888	26	1897	5	1890	-8	1872	-17			
Louisville:																												
Maximum.....	72	1890	78	1887	86	1895	91	1894	94	1895	100	1895	107	1901	105	1881	102	1899	91	1897	79	1895	74	1875	107		127	31
Minimum.....	-20	1884	-14	1899	3	1899	21	1875	33	1898	44	1889	54	1895	52	1885	36	1888	26	1887	4	1872	-7	1890	-20			
Knoxville:																												
Maximum.....	74	1876	72	1903	83	1895	90	1896	94	1877	99	1898	100	1887	100	1881	99	1899	94	1884	80	1881	75	1874	100		116	33
Minimum.....	-16	1884	-10	1899	5	1899	24	1881	34	1894	43	1894	52	1885	50	1879	35	1888	25	1876	12	1872	-5	1890	-16			
Nashville:																												
Maximum.....	75	1890	77	1883	85	1895	90	1872	93	1895	99	1874	102	1901	104	1874	99	1896	92	1884	81	1892	75	1874	104		117	33
Minimum.....	-10	1884	-13	1899	3	1899	26	1881	37	1888	42	1894	56	1891	51	1891	38	1899	27	1887	10	1887	-2	1901	-13			
Memphis:																												
Maximum.....	79	1890	79	1890	87	1895	90	1899	96	1879	100	1881	104	1901	102	1901	99	1887	92	1884	82	1879	76	1880	104		113	31
Minimum.....	-8	1886	-9	1899	15	1899	27	1881	41	1893	50	1889	58	1891	53	1891	41	1896	27	1895	16	1890	3	1880	-9			
Chattanooga:																												
Maximum.....	75	1898	78	1890	85	1895	90	1896	93	1898	98	1901	101	1879	100	1881	98	1896	91	1884	79	1890	73	1889	101		111	26
Minimum.....	-7	1886	-10	1899	2	1899	25	1881	40	1890	39	1889	56	1885	54	1891	38	1888	27	1893	16	1887	3	1890	-10			
Rocky Mountain and Plateau region.																												
Boise:																												
Maximum.....	62	1884	67	1896	77	1895	92	1898	100	1897	105	1898	111	1898	106	1893	100	1888	91	1889	72	1892	62	1888	111		139	26
Minimum.....	-28	1888	-12	1883	7	1897	18	1883	26	1887	30	1901	40	1883	32	1892	28	1889	16	1887	-10	1896	-7	1884	-28			
Helena:																												
Maximum.....	63	1902	65	1895	72	1893	82	1891	89	1896	102	1900	103	1886	98	1893	90	1893	80	1889	71	1894	58	1900	103		145	24
Minimum.....	-42	1893	-41	1893	-20	1891	6	1896	22	1885	31	1890	36	1898	34	1890	20	1900	3	1887	-22	1896	-40	1890	-42			
Cheyenne:																												
Maximum.....	64	1888	63	1886	77	1879	80	1874	88	1874	97	1881	100	1881	96	1882	90	1895	83	1892	75	1891	64	1885	100		138	31
Minimum.....	-38	1875	-28	1899	-17	1880	2	1875	30	1893	28	1876	38	1889	30	1892	19	1896	-5	1878	-20	1875	-24	1890	-38			
Denver:																												
Maximum.....	76	1888	77	1890	81	1879	83	1874	92	1874	99	1873	102	1874	105	1878	97	1899	90	1892	77	1897	74	1901	105		134	32
Minimum.....	-29	1875	-22	1883	-11	1886	4	1876	27	1873	36	1892	42	1873	43	1896	27	1895	1	1873	-18	1877	-25	1876	-29			
Santa Fe:																												
Maximum.....	76	1879	75	1879	82	1879	84	1879	89	1872	92	1881	96	1878	97	1878	90	1879	85	1878	77	1878	65	1878	97		110	30
Minimum.....	-13	1883	-11	1888	0	1880	11	1875	24	1887	33	1880	43	1897	40	1882	27	1880	16	1880	-11	1880	-13	1879	-13			
Winnemucca:																												
Maximum.....	57	1887	69	1879	82	1879	83	1888	96	1887	98	1887	104	1877	102	1882	94	1880	87	1889	73	1891	65	1878	104		132	25
Minimum.....	-28	1888	-22	1890	-3	1882	12	1901	17	1887	29	1880	35	1897	26	1887	16	1895	10	1887	-9	1880	-20	1879	-28			

e Occurred also in 1888.
f Occurred also in 1880.

TABLE II.—ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES FOR SELECTED STATIONS, WITH YEAR OF OCCURRENCE 1871-1903—Continued.

	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.		Annual.	Absolute range.	No. of years' record.
	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.	Temperature.	Year.			
Rocky Mountain and Plateau region—Continued.																											
Salt Lake City:	° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.		° F.	° F.	
Maximum.....	57	1900	68	1879	77	1879	84	1889	93	1887	101	1900	102	1889	101	1875	93	1875	86	1889	74	1898	61	1874	102	122	30
Minimum.....	-20	1883	-13	1884	0	1890	18	1896	25	1899	33	1898	45	1891	44	1880	29	1895	22	1878	-2	1896	-10	1879	-20		
Yuma:																											
Maximum.....	81	1899	92	1904	100	1879	107	1898	112	1896	117	1896	118	1878	115	1879	113	1879	108	1887	92	1891	83	1901	118	96	28
Minimum.....	22	1883	25	1880	31	1881	38	1901	44	1887	52	1892	61	1879	60	1887	50	1894	41	1883	31	1880	24	1901	22		
Pacific coast States.																											
Spokane:																											
Maximum.....	55	1893	59	1896	74	1881	86	1887	25	1897	96	1896	102	1890	104	1898	98	1888	86	1889	69	1891	57	1886	104	134	23
Minimum.....	-30	1888	-23	1890	-10	1891	22	1890	29	1881	34	1891	41	1887	38	1881	26	1889	12	1887	-13	1896	-18	1884	-30		
Portland:																											
Maximum.....	62	1888	68	1901	79	1886	89	1897	99	1887	99	1876	102	1891	97	1891	93	1886	83	1891	73	1890	65	1886	102	104	31
Minimum.....	-2	1888	7	1884	20	1896	28	1875	32	1894	39	1875	45	1901	43	1876	36	1895	31	1895	11	1896	11	1896	11	2	
Roseburg:																											
Maximum.....	71	1888	74	1902	81	1887	93	1904	102	1887	98	1896	102	1891	104	1894	99	1888	91	1885	74	1891	68	1902	104	110	26
Minimum.....	-6	1888	3	1884	18	1896	26	1890	30	1886	36	1893	40	1887	40	1882	35	1881	22	1881	14	1896	7	1879	-6		
San Francisco:																											
Maximum.....	78	1899	76	1888	80	1892	88	1888	97	1887	100	1891	93	1888	92	1891	94	1886	94	1899	83	1895	72	1901	100	71	33
Minimum.....	29	1888	33	1887	33	1896	40	1891	43	1899	47	1893	47	1898	47	1893	47	1900	45	1881	38	1896	34	1879	29		
San Diego:																											
Maximum.....	83	1893	85	1889	99	1879	^a 93	1899	98	1896	94	1877	88	1891	92	1884	101	1883	93	1899	91	1890	^b 82	1893	101	69	32
Minimum.....	32	1894	34	1891	36	1894	39	1875	45	1894	50	1884	54	1884	54	1878	50	1880	44	1878	38	1895	32	1879	32		
Red Bluff:																											
Maximum.....	77	1899	82	1888	86	1892	96	1898	110	1887	110	1891	112	1898	114	1891	107	1891	97	1892	88	1890	76	1893	114	96	20
Minimum.....	18	1888	22	1884	26	1896	30	1901	37	1879	44	1898	53	1881	52	1881	45	1901	32	1881	26	1880	25	1879	18		
Los Angeles:																											
Maximum.....	87	1896	88	1901	99	1879	^a 99	1898	103	1896	105	1890	109	1891	106	1885	108	1885	102	1885	96	1890	89	1897	109	81	26
Minimum.....	30	1883	28	1883	31	1893	36	1901	40	1883	46	1894	49	1888	49	1901	44	1880	40	1895	34	1881	30	1879	28		

^a Occurred also in 1888.^b Occurred also in 1874.

MONTHLY AND ANNUAL MEAN MAXIMUM AND MEAN MINIMUM
TEMPERATURES FOR SELECTED STATIONS.

MEAN OF THE ABSOLUTE MAXIMUM AND ABSOLUTE MINIMUM
TEMPERATURES FOR EACH MONTH FOR 32 STATIONS.

TABLE III.—MONTHLY AND ANNUAL MEAN MAXIMUM AND MEAN MINIMUM TEMPERATURES FOR SELECTED STATIONS.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperatures.											
					January.		February.		March.		April.		May.		June.	
					Mean maxi- mum.	Mean mini- mum.	Mean Maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.
					° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
<i>New England and Middle Atlantic States.</i>																
Eastport.....	44 54	66 59	33	31	28	13	29	15	35	23	45	33	55	40	63	47
Portland.....	43 39	70 15	47	32	30	18	32	17	39	25	51	36	62	46	71	55
Boston.....	42 21	71 4	15	31	35	19	36	20	43	28	53	38	66	48	75	57
Block Island.....	41 10	71 36	28	23	37	25	36	25	41	30	50	38	58	47	68	56
New Haven.....	41 18	72 56	25	31	35	20	36	21	43	28	55	38	67	48	76	58
Buffalo.....	42 53	78 53	612	33	31	18	31	18	38	24	50	35	62	46	72	57
Rochester.....	43 8	77 42	498	33	31	18	32	17	38	23	53	36	66	47	76	57
Oswego.....	43 29	76 35	292	33	31	16	31	17	37	24	50	36	63	46	73	55
Albany.....	42 39	73 45	23	31	31	15	32	16	40	24	56	38	69	50	78	59
New York City.....	40 43	74 0	37	33	37	24	38	24	45	30	57	41	68	52	77	61
Erie.....	42 7	80 5	659	30	34	20	35	19	40	25	52	37	65	49	74	59
Pittsburg.....	40 32	80 2	738	31	38	24	41	24	48	30	62	42	73	52	82	61
Philadelphia.....	39 57	75 9	42	31	39	25	41	26	52	32	60	42	72	53	81	63
Atlantic City.....	39 22	74 25	7	28	40	26	40	27	45	32	54	41	63	52	73	60
Baltimore.....	39 18	76 37	103	31	41	27	43	28	49	34	61	44	73	55	82	64
Washington.....	38 54	77 3	75	33	41	27	44	33	51	43	63	54	74	63	83	68
Lynchburg.....	37 25	79 9	623	33	45	28	48	30	56	37	66	45	77	55	84	64
Norfolk.....	36 51	76 17	10	33	48	33	51	34	57	39	65	47	75	57	83	66
<i>South Atlantic and East Gulf States.</i>																
Charlotte.....	35 13	80 51	748	25	49	33	53	35	60	41	70	49	80	59	86	66
Wilmington.....	34 14	77 57	37	33	56	38	58	40	64	45	70	52	78	61	84	69
Charleston.....	32 47	79 56	11	33	57	43	60	45	65	50	72	57	80	66	86	73
Atlanta.....	33 45	84 23	1,052	25	50	35	54	37	61	43	70	52	79	60	85	67
Augusta.....	33 28	81 54	138	32	56	38	60	40	67	45	75	53	83	61	89	69
Jacksonville.....	30 20	81 39	3	32	64	46	67	49	72	54	78	59	84	66	89	72
Key West.....	24 34	81 49	3	33	74	65	76	67	77	68	80	71	84	75	87	78
Pensacola.....	30 25	87 13	12	24	60	45	63	49	67	54	74	60	81	67	86	74
Montgomery.....	32 23	86 18	196	31	57	39	60	42	68	48	76	55	84	63	89	70
Mobile.....	30 41	88 2	12	33	59	43	62	46	68	52	75	58	83	66	88	72
Vicksburg.....	32 22	90 53	226	32	56	40	60	43	68	49	75	57	83	64	88	70
<i>West Gulf States and Southeastern Rocky Mountain States.</i>																
Little Rock.....	34 45	92 6	299	24	49	34	53	36	62	44	77	58	80	61	87	68
Shreveport.....	32 30	93 40	197	32	55	38	59	42	68	49	77	57	83	64	90	70
New Orleans.....	29 58	90 4	8	33	61	47	64	50	70	55	76	61	83	68	87	74
Palestine.....	31 45	95 40	495	22	55	33	60	42	68	49	76	57	82	63	88	69
El Paso.....	31 47	106 30	3,702	25	58	31	62	35	70	42	79	50	87	58	94	66
San Antonio.....	29 27	98 28	660	18	62	42	65	45	72	51	80	59	85	65	90	71
Galveston.....	29 18	94 50	6	33	58	47	62	51	68	57	74	64	81	71	86	77
<i>North Central district.</i>																
Bismarck.....	46 47	100 38	1,670	29	17	- 4	20	- 1	32	12	54	32	67	43	75	53
Moorhead.....	46 52	96 44	907	23	12	- 7	16	- 4	30	11	53	32	66	42	76	53
St. Paul.....	44 58	93 3	758	31	20	2	24	7	36	18	56	36	68	48	77	58
Marquette.....	46 34	87 24	656	33	24	10	25	9	32	15	46	31	58	41	68	50
Alpena.....	45 5	83 30	591	31	26	12	26	10	33	17	47	31	59	41	69	51
Detroit.....	42 20	83 3	593	33	31	18	32	19	40	26	55	38	67	49	76	58
Milwaukee.....	43 2	87 54	619	33	27	13	30	15	38	24	52	37	63	45	72	55
La Crosse.....	43 49	91 15	673	31	24	7	26	8	39	22	58	39	69	49	78	59
Huron.....	44 21	98 14	1,287	22	22	0	24	1	38	17	59	34	69	44	79	54
North Platte.....	41 8	100 45	2,803	29	32	10	38	14	48	23	61	36	70	47	80	56
Omaha.....	41 16	95 56	1,037	33	30	12	34	15	45	26	62	42	72	51	81	62
Des Moines.....	41 35	93 37	806	25	29	11	32	14	44	26	61	41	72	51	80	61
Davenport.....	41 30	90 38	580	32	29	13	33	16	43	27	60	41	71	52	79	61

TABLE III.—MONTHLY AND ANNUAL MEAN MAXIMUM AND MEAN MINIMUM TEMPERATURES FOR SELECTED STATIONS.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperatures.													
					July.		August.		September.		October.		November.		December.		Annual.	
					Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.
<i>New England and Middle Atlantic States.</i>					° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Eastport.....	44 54	66 59	33	31	70	52	68	53	65	49	55	41	44	31	34	18	49	35
Portland.....	43 39	70 15	47	32	77	60	74	59	68	52	56	42	45	32	33	20	59	38
Boston.....	42 21	71 4	15	31	80	63	78	62	71	55	60	45	49	34	40	24	57	41
Block Island.....	41 10	71 36	28	23	74	63	73	63	69	59	59	49	50	40	42	30	55	44
New Haven.....	41 18	72 56	25	31	80	63	78	61	72	55	61	44	49	34	38	25	59	41
Buffalo.....	42 53	78 53	612	33	76	63	76	61	70	55	58	44	45	37	36	24	54	40
Rochester.....	43 8	77 42	498	33	80	62	78	60	72	53	59	42	44	32	35	22	55	39
Oswego.....	43 29	76 35	292	33	78	62	76	61	70	54	58	44	45	33	35	22	54	39
Albany.....	42 39	73 45	23	31	82	64	80	62	72	55	60	43	46	32	36	22	57	40
New York City.....	40 43	74 0	37	33	82	67	80	66	74	59	63	48	51	38	41	28	59	45
Erie.....	42 7	80 5	659	30	78	64	77	62	71	57	60	46	78	35	39	26	56	42
Pittsburg.....	40 32	80 2	739	31	85	65	83	63	77	57	66	46	51	36	42	28	62	44
Philadelphia.....	39 57	75 9	42	31	85	69	82	66	76	60	65	49	52	38	43	29	62	49
Atlantic City.....	39 22	74 25	7	28	78	66	78	66	73	61	63	50	52	39	43	29	58	46
Baltimore.....	39 18	76 37	103	31	86	69	84	67	77	61	66	49	53	39	44	31	63	47
Washington.....	38 54	77 3	75	33	87	66	84	59	78	47	68	37	54	29	44	26	64	46
Lynchburg.....	37 25	79 9	623	33	88	68	85	69	79	60	68	48	57	40	48	31	67	48
Norfolk.....	36 51	76 17	10	33	88	71	85	70	79	65	69	54	59	44	51	36	68	51
<i>South Atlantic and East Gulf States.</i>					° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Charlotte.....	35 13	80 51	748	25	88	69	86	68	81	62	71	51	60	41	50	34	70	51
Wilmington.....	34 14	77 57	37	33	87	72	86	71	82	66	73	56	64	46	58	39	72	55
Charleston.....	32 47	79 56	11	33	88	76	87	75	82	70	74	60	66	51	60	44	73	60
Atlanta.....	33 45	84 23	1,052	25	87	70	85	69	81	64	71	54	60	43	53	36	70	52
Augusta.....	33 28	81 54	138	32	91	71	89	71	84	66	75	54	65	44	58	38	74	54
Jacksonville.....	30 20	81 39	3	32	91	74	90	74	86	71	78	63	71	54	65	47	78	61
Key West.....	24 34	81 49	3	33	89	79	89	79	87	78	83	75	78	71	74	66	82	73
Pensacola.....	30 25	87 13	12	24	88	75	88	74	85	71	77	62	68	52	62	46	75	61
Montgomery.....	32 23	86 18	196	31	92	73	90	72	86	66	76	56	66	46	59	40	75	56
Mobile.....	30 41	88 2	12	33	90	74	89	73	86	70	77	59	67	50	60	46	75	59
Vicksburg.....	32 22	90 53	226	32	91	73	90	72	86	66	76	56	66	47	59	42	75	56
<i>West Gulf States and Southeastern Rocky Mountain slope.</i>					° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Little Rock.....	34 45	92 6	299	24	90	72	89	70	83	64	74	54	61	42	52	35	71	53
Shreveport.....	32 30	93 40	197	32	93	73	92	72	86	66	77	56	65	46	58	41	75	58
New Orleans.....	29 58	90 4	8	33	89	76	88	75	85	72	78	63	69	54	63	48	76	62
Palestine.....	31 45	95 40	495	22	92	72	92	72	87	66	78	57	67	48	60	42	75	56
El Paso.....	31 47	106 30	3,702	25	95	69	93	68	87	62	78	50	67	40	59	33	77	50
San Antonio.....	29 27	98 38	660	18	94	73	94	73	88	68	82	59	71	50	65	44	79	58
Galveston.....	29 18	94 50	6	33	89	79	88	78	84	75	78	68	68	58	62	51	75	65
<i>North Central district.</i>					° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Bismarck.....	46 47	100 38	1,670	29	82	58	81	55	70	45	56	33	37	16	25	6	51	29
Moorhead.....	46 52	96 44	907	23	79	56	78	54	69	41	54	34	38	15	21	2	49	27
St. Paul.....	44 58	93 3	758	31	83	62	80	60	71	51	57	39	38	22	27	11	53	35
Marquette.....	46 34	87 24	656	33	77	56	72	56	66	50	54	39	38	26	30	17	49	33
Alpena.....	45 5	83 30	591	31	76	57	72	55	66	49	54	39	40	28	30	19	50	34
Detroit.....	42 20	83 3	593	33	81	63	79	61	72	55	60	44	45	32	35	24	56	41
Milwaukee.....	43 2	87 54	619	33	78	62	76	61	70	54	58	44	43	30	32	20	53	38
La Crosse.....	43 49	91 15	673	31	83	63	80	60	72	52	60	41	42	26	30	15	54	37
Huron.....	44 21	98 14	1,287	22	85	59	83	57	74	47	61	34	41	18	29	8	55	31
North Platte.....	41 8	100 45	2,803	29	86	62	84	60	77	49	64	37	49	22	39	13	61	36
Omaha.....	41 16	95 56	1,037	33	86	67	84	65	76	56	64	44	45	28	35	19	60	41
Des Moines.....	41 35	93 37	806	25	86	65	83	65	75	54	64	43	46	28	34	18	59	40
Davenport.....	41 30	90 38	580	32	85	66	82	63	74	56	62	45	46	30	35	20	58	41

TABLE III.—MONTHLY AND ANNUAL MEAN MAXIMUM AND MEAN MINIMUM TEMPERATURES FOR SELECTED STATIONS—Continued.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperatures.											
					January.		February.		March.		April.		May.		June.	
					Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.	Mean maxi- mum.	Mean mini- mum.
<i>North Central district—Continued.</i>	° ' ,	° ' ,	<i>Feet.</i>		° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Keokuk.....	40 22	91 26	574	32	34	16	37	19	46	30	62	43	72	54	81	63
Dodge City.....	37 45	100 0	2,490	29	40	17	44	20	56	29	68	41	76	52	85	61
St. Louis.....	38 38	90 12	466	31	40	24	43	26	52	35	66	45	71	58	84	66
Chicago.....	41 53	87 37	595	31	31	16	33	19	41	28	54	39	64	49	74	59
Springfield, Ill.....	39 48	89 39	607	24	35	19	37	21	48	31	63	44	73	54	82	63
Cairo.....	37 0	89 10	313	32	43	28	46	31	55	39	65	50	76	59	84	67
Indianapolis.....	39 46	86 10	711	32	36	21	39	23	47	32	60	44	73	54	82	63
Toledo.....	41 40	83 34	597	30	33	19	34	20	43	27	56	39	68	50	77	60
Cleveland.....	41 30	81 42	659	33	33	20	34	20	42	27	55	39	66	50	75	59
Columbus.....	39 58	83 0	759	25	36	22	38	23	47	31	61	42	73	53	81	61
Cincinnati.....	39 6	84 30	553	32	40	24	43	27	51	34	63	45	77	57	82	65
Louisville.....	38 15	85 45	400	31	42	27	45	29	54	36	66	47	76	57	84	66
Knoxville.....	35 56	83 58	992	33	47	30	50	33	58	35	69	48	78	56	84	64
Nashville.....	36 10	86 47	459	33	47	30	50	33	58	39	69	50	78	58	86	67
Memphis.....	35 9	90 3	268	33	48	33	52	36	61	44	72	54	79	61	87	69
Chattanooga.....	35 4	85 14	700	25	50	33	53	36	60	42	71	51	79	58	86	66
<i>Rocky Mountain and Plateau region.</i>																
Boise.....	43 37	116 8	2,706	18	40	27	41	25	53	34	61	38	70	45	80	52
Helena.....	46 34	112 4	4,109	24	28	12	30	14	40	23	54	34	63	42	70	49
Cheyenne.....	41 8	104 48	6,056	33	36	14	37	15	44	21	54	30	64	39	75	47
Denver.....	39 45	105 0	5,219	31	42	16	44	19	52	26	60	35	70	44	81	53
Santa Fe.....	35 14	105 57	6,980	30	39	19	43	22	52	29	60	35	69	44	78	53
Winnemucca.....	40 58	117 43	4,287	26	38	17	44	22	52	28	59	34	68	40	77	48
Salt Lake City.....	40 46	111 54	4,293	30	36	21	41	25	50	32	60	40	69	47	79	51
Yuma.....	32 45	114 36	137	28	66	42	72	46	78	50	85	55	93	61	101	68
<i>Pacific coast States.</i>																
Spokane.....	47 40	117 25	1,881	23	33	20	38	22	48	30	59	37	68	45	74	50
Portland.....	45 32	122 43	20	32	44	34	48	35	55	39	60	42	67	48	72	52
Roseburg.....	43 13	123 20	475	26	47	35	50	36	57	38	61	41	68	46	72	49
San Francisco.....	37 48	122 26	28	32	55	45	57	46	60	48	61	49	63	51	65	52
San Diego.....	32 43	117 10	40	32	62	46	62	47	64	49	65	52	67	56	70	56
Red Bluff.....	40 10	122 15	309	26	53	37	58	40	62	44	70	48	79	55	87	60
Los Angeles.....	34 3	118 15	286	26	64	44	66	45	67	47	70	49	73	52	78	50

TABLE III.—MONTHLY AND ANNUAL MEAN MAXIMUM AND MEAN MINIMUM TEMPERATURES FOR SELECTED STATIONS—Continued.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperatures.															
					July.		August.		Septem-ber.		October.		Novem-ber.		Decem-ber.		Annual.			
					Mean maxi-mum.	Mean mini-mum.	Mean maxi-mum.	Mean mini-mum.	Mean maxi-mum.	Mean mini-mum.	Mean maxi-mum.	Mean mini-mum.	Mean maxi-mum.	Mean mini-mum.	Mean maxi-mum.	Mean mini-mum.	Mean maxi-mum.	Mean mini-mum.		
<i>North Central district—Continued.</i>	° '.	° '.	<i>Feet.</i>		° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.		
Keokuk.....	40 22	91 26	574	32	86	68	85	65	77	58	65	45	48	32	37	22	61	43		
Dodge City.....	37 45	100 0	2,490	29	90	66	89	64	81	56	70	43	54	29	45	21	66	42		
St. Louis.....	38 38	90 12	466	31	88	71	86	60	79	61	68	50	53	37	43	29	64	48		
Chicago.....	41 53	87 37	595	31	80	65	77	65	71	57	57	46	45	32	36	22	55	41		
Springfield, Ill.....	39 48	89 39	607	24	86	67	84	64	77	57	66	46	50	33	30	25	62	44		
Cairo.....	37 0	89 10	313	32	87	71	83	69	79	62	69	50	55	30	46	32	66	50		
Indianapolis.....	39 46	86 10	711	32	86	67	83	64	76	58	64	46	49	34	39	26	61	44		
Toledo.....	41 40	83 34	597	30	82	64	79	62	73	56	61	45	47	33	37	24	58	42		
Cleveland.....	41 30	81 42	659	33	80	64	77	62	72	56	61	45	47	35	37	25	57	42		
Columbus.....	39 58	83 0	759	25	86	62	83	63	77	56	64	45	49	34	40	26	61	43		
Cincinnati.....	39 6	84 30	553	32	87	69	84	66	78	60	66	48	52	37	43	29	64	47		
Louisville.....	38 15	85 45	460	31	88	69	86	67	80	60	69	49	54	38	45	31	66	48		
Knoxville.....	35 56	83 58	992	33	87	68	86	66	81	60	70	48	58	38	49	32	68	48		
Nashville.....	36 10	86 47	459	33	89	70	87	68	81	61	71	50	58	40	50	33	69	50		
Memphis.....	35 9	90 3	268	33	90	72	88	71	82	64	72	54	60	43	52	37	70	53		
Chattanooga.....	35 4	85 14	700	25	88	69	86	68	82	62	72	51	60	41	52	35	70	51		
<i>Rocky Mountain and Plateau region.</i>																				
Boise.....	43 37	116 8	2,706	18	88	56	86	55	76	46	65	40	53	34	40	25	63	40		
Helena.....	46 34	112 4	4,109	24	79	54	79	54	67	45	56	36	40	23	33	18	53	34		
Cheyenne.....	41 8	104 48	6,056	33	82	53	80	52	72	42	59	33	47	23	40	18	57	32		
Denver.....	39 45	105 0	5,219	31	86	59	85	57	77	48	65	37	52	26	45	20	63	37		
Santa Fe.....	35 14	105 57	6,980	30	81	57	79	56	73	49	62	39	50	28	42	21	61	38		
Winnemucca.....	40 58	117 43	4,287	26	88	54	88	52	77	43	64	33	51	23	42	21	62	35		
Salt Lake City.....	40 46	111 54	4,293	30	88	63	87	62	77	52	63	42	49	32	40	21	62	41		
Yuma.....	32 45	114 36	137	28	106	77	104	77	100	70	87	58	76	49	68	44	86	58		
<i>Pacific coast States.</i>																				
Spokane.....	47 40	117 25	1,881	23	83	55	83	54	71	48	59	38	44	30	37	26	58	38		
Portland.....	45 32	122 43	20	32	78	56	77	55	71	51	62	46	52	40	47	37	61	45		
Roseburg.....	43 13	123 20	475	26	80	52	80	53	74	48	64	44	54	39	48	36	63	43		
San Francisco.....	37 48	122 26	28	32	65	53	65	53	68	54	66	54	62	51	56	47	62	50		
San Diego.....	32 43	117 10	40	32	73	62	75	64	74	61	70	56	68	51	65	48	68	54		
Red Bluff.....	40 10	122 15	309	26	97	66	95	65	86	60	77	52	64	44	54	39	74	51		
Los Angeles.....	34 3	118 15	286	26	83	59	84	60	82	57	76	52	72	48	67	46	74	51		

TABLE IV.—MEAN OF THE ABSOLUTE MAXIMUM AND ABSOLUTE MINIMUM TEMPERATURES FOR EACH MONTH FOR 32 STATIONS.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperature.											
					January.		February.		March.		April		May.		June.	
					Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
<i>New England and Middle Atlantic States.</i>																
Boston.....	42 21	71 4	15	31	55	- 1	55	0	61	10	76	24	87	37	92	48
Northfield.....	44 10	72 41	862	15	49	-17	46	-21	51	- 8	74	12	83	27	88	36
Albany.....	42 39	73 45	23	28	49	- 6	49	- 5	57	6	76	24	85	37	91	47
Rochester.....	43 8	77 42	498	30	52	- 1	53	- 2	60	6	77	22	85	33	90	44
Philadelphia.....	39 57	75 9	42	31	57	8	60	8	66	16	80	30	88	42	93	52
Washington.....	38 54	77 3	75	31	61	11	64	9	71	18	84	30	90	41	95	51
Norfolk.....	36 51	76 17	10	31	69	18	71	19	76	25	85	35	91	46	96	57
<i>South Atlantic and East Gulf States.</i>																
Atlanta.....	33 45	84 23	1,052	23	67	15	71	18	77	24	84	35	89	46	93	57
Charlotte.....	35 13	80 51	748	23	72	15	75	17	78	24	84	33	91	44	95	56
Charleston.....	32 47	79 56	11	29	72	26	75	28	78	34	84	43	91	53	95	63
Jacksonville.....	30 20	81 39	3	30	77	29	79	32	84	37	88	45	93	55	97	65
Montgomery.....	32 23	86 18	196	29	73	21	76	25	82	31	87	40	93	49	97	62
Mobile.....	30 41	88 2	12	31	72	24	74	30	78	35	84	44	90	53	96	64
<i>West Gulf and southern Rocky Mountain slope.</i>																
Shreveport.....	32 30	93 40	197	29	73	19	76	24	84	32	88	42	92	50	97	60
Galveston.....	29 18	94 50	6	31	70	29	72	35	76	41	81	51	87	61	91	99
Abilene.....	32 23	99 40	1,718	16	75	14	78	14	83	24	92	36	97	48	100	57
<i>North central district.</i>																
Bismarck.....	46 47	100 38	1,670	29	44	-29	50	-23	58	-17	74	14	85	27	92	38
St. Paul.....	44 58	93 3	758	29	40	-22	45	-29	56	- 7	77	20	84	35	90	46
Marquette.....	46 34	87 24	656	28	42	-10	45	-13	51	- 3	72	14	81	29	90	37
Detroit.....	42 20	83 3	593	31	55	- 2	56	- 1	65	8	81	22	90	35	96	46
Omaha.....	41 16	95 56	1,037	29	57	-12	57	- 9	72	3	83	25	87	38	94	48
St. Louis.....	38 38	90 12	466	31	63	- 1	67	15	75	17	85	31	89	43	94	54
Nashville.....	36 10	86 47	459	31	66	8	71	13	77	22	84	34	90	44	94	56
Cincinnati.....	39 6	84 30	553	31	61	3	65	7	72	17	82	30	88	41	93	53
<i>Rocky Mountain and plateau region.</i>																
Helena.....	46 34	112 4	4,109	21	50	-20	54	-17	62	- 3	72	15	81	30	88	37
Salt Lake City.....	40 46	111 54	4,293	28	50	■	55	9	68	19	77	28	86	35	93	42
Denver.....	39 45	105 0	5,219	30	62	-10	63	- 2	72	6	78	17	85	32	94	41
Santa Fe.....	35 41	105 57	6,980	29	52	1	56	6	66	14	72	20	80	31	87	41
<i>Pacific coast.</i>																
Portland.....	45 32	122 43	20	29	57	21	59	23	68	30	80	34	88	38	89	44
Red Bluff.....	40 10	122 15	309	24	66	28	73	30	78	35	86	38	97	43	103	50
San Francisco.....	37 48	122 26	28	31	63	39	68	41	75	42	77	44	83	47	84	49
San Diego.....	32 43	117 10	40	30	73	38	75	40	75	42	79	44	77	49	79	54

GENERAL TABLES.

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TABLE IV.—MEAN OF THE ABSOLUTE MAXIMUM AND ABSOLUTE MINIMUM TEMPERATURES FOR EACH MONTH FOR 32 STATIONS.

	North latitude.	West longitude.	Altitude.	Years of record.	Temperature.															
					July.		August.		September.		October.		November.		December.		Annual.			
					Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.		
			Feet.		° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	
<i>New England and Middle Atlantic States.</i>																				
Boston.....	42 21	71 4	15	31	94	54	91	52	88	42	78	32	67	17	58	3	75	28		
Northfield.....	44 10	72 41	862	15	90	42	87	38	84	28	73	19	62	2	52	-15	70	12		
Albany.....	42 39	73 45	23	28	93	53	91	50	87	40	76	29	64	15	54	-1	74	24		
Rochester.....	43 8	77 42	411	30	93	51	91	48	89	39	79	29	66	16	56	2	74	24		
Philadelphia.....	39 57	75 9	42	31	95	60	93	57	89	47	80	36	69	23	60	12	78	33		
Washington.....	38 54	77 3	75	31	97	58	95	56	92	45	82	33	71	22	64	12	80	32		
Norfolk.....	36 51	76 17	10	31	98	63	94	63	91	54	82	42	75	29	69	19	83	39		
<i>South Atlantic and East Gulf States.</i>																				
Atlanta.....	33 45	84 23	1,052	23	95	61	93	62	90	50	83	39	75	25	67	18	82	38		
Charlotte.....	35 13	80 51	748	23	99	61	94	59	91	49	85	37	79	25	72	18	85	36		
Charleston.....	32 47	79 56	11	29	99	69	94	68	91	60	85	47	79	34	72	29	85	46		
Jacksonville.....	30 20	81 39	3	30	98	69	96	69	93	62	87	48	82	37	77	30	88	48		
Montgomery.....	32 23	86 18	196	29	99	67	96	66	94	54	87	41	79	29	73	23	86	42		
Mobile.....	30 41	88 2	12	31	97	69	95	68	93	57	87	44	78	32	73	26	85	46		
<i>West Gulf and southern Rocky Mountain slope.</i>																				
Shreveport.....	32 30	93 40	197	29	100	67	99	65	95	53	89	41	80	29	75	23	87	42		
Galveston.....	29 18	94 50	6	31	93	72	93	72	90	64	86	53	79	40	72	33	82	52		
Abilene.....	32 23	99 40	1,718	16	101	65	94	63	96	50	89	39	82	25	76	16	89	38		
<i>North central district.</i>																				
Bismarck.....	46 47	100 38	1,670	29	97	45	97	41	91	26	78	20	61	-10	49	-20	73	9		
St. Paul.....	44 58	93 3	758	29	94	54	93	49	88	36	77	21	60	-1	46	-15	71	16		
Marquette.....	46 34	87 24	656	28	93	45	89	43	86	36	75	26	58	8	46	-3	69	17		
Detroit.....	42 20	83 3	593	31	99	53	96	50	94	39	84	30	67	14	54	3	78	25		
Omaha.....	41 16	95 56	1,037	29	98	56	96	53	92	39	82	26	69	7	57	-5	79	22		
St. Louis.....	38 38	90 12	466	31	97	62	97	59	93	46	85	34	73	18	63	5	82	32		
Nashville.....	36 10	86 47	459	31	97	62	96	60	92	46	84	34	75	22	67	14	83	35		
Cincinnati.....	39 6	84 30	553	31	96	60	94	57	90	45	82	33	70	19	62	7	80	31		
<i>Rocky Mountain and plateau region.</i>																				
Helena.....	46 34	112 4	4,109	21	94	44	92	43	83	32	72	22	61	-2	52	-10	72	14		
Salt Lake City.....	40 46	111 54	4,293	28	97	52	96	51	89	40	78	30	65	19	54	9	76	28		
Denver.....	39 45	105 0	5,219	30	97	50	95	49	90	35	82	22	71	6	65	-5	80	20		
Santa Fe.....	35 41	105 57	6,980	29	88	50	87	48	82	38	73	25	62	14	54	4	72	24		
<i>Pacific coast.</i>																				
Portland.....	45 32	122 43	20	29	96	48	90	46	80	42	76	36	63	29	58	25	75	35		
Red Bluff.....	40 10	122 15	309	24	108	57	106	56	101	50	91	42	78	34	67	30	88	41		
San Francisco.....	37 48	122 26	28	31	80	50	80	50	87	51	84	49	75	46	66	46	77			
San Diego.....	32 43	117 10	40	30	79	58	83	58	85	55	83	49	83	44	79	40	79	48		

TABLE V.—ABSOLUTE RANGE MONTHLY MEAN TEMPERATURES AT SELECTED STATIONS.

	North lati- tude.	West longi- tude.	Altitude. Feet.	Years of record.	Temperatures.											
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
<i>New England and Middle Atlantic States.</i>																
Eastport.....	44 54	66 59	33	31	15	11	13	8	4	5	5	4	5	7	11	15
Portland.....	43 39	70 15	47	32	18	13	17	13	11	10	7	8	9	13	14	20
Boston.....	42 21	71 4	15	33	16	13	18	10	7	10	7	8	■	10	13	18
Block Island.....	41 10	71 36	28	23	13	12	12	■	7	7	7	6	5	7	11	11
New Haven.....	41 18	72 56	25	31	17	16	18	13	13	10	8	8	11	10	13	13
Buffalo.....	42 53	78 53	612	31	20	20	21	16	13	10	9	8	13	15	17	17
Rochester.....	43 8	77 42	■	■	19	18	22	17	13	10	10	9	16	16	15	17
Oswego.....	43 29	76 35	292	33	21	20	12	14	11	11	10	9	14	13	11	■
Albany.....	42 39	73 45	23	30	17	18	■	20	10	10	■	10	13	14	12	22
New York City.....	40 43	74 0	37	32	17	17	19	14	11	8	8	8	11	11	7	17
Erie.....	42 7	80 5	659	30	22	21	18	17	14	9	10	8	13	15	14	19
Pittsburg.....	40 32	80 2	738	31	21	21	19	17	13	9	10	9	15	13	16	23
Philadelphia.....	39 57	75 9	42	33	18	17	18	15	12	9	9	8	12	11	12	19
Atlantic City.....	39 22	74 25	7	28	19	15	14	10	10	7	■	8	8	10	12	17
Baltimore.....	39 18	76 37	103	31	20	17	15	12	11	■	10	7	13	11	10	16
Washington.....	38 54	77 3	75	33	19	17	16	10	11	11	■	8	15	12	11	20
Lynchburg.....	37 25	79 9	623	31	20	16	15	10	■	8	■	9	17	11	13	20
Norfolk.....	36 51	76 17	10	33	21	20	14	16	10	8	■	9	10	12	11	17
<i>South Atlantic and East Gulf States.</i>																
Charlotte.....	35 13	80 51	748	25	18	20	11	11	10	9	7	8	■	■	13	17
Wilmington.....	34 14	77 57	37	33	18	21	12	10	10	7	7	5	8	9	11	17
Charleston.....	32 47	79 56	11	31	16	20	12	11	8	7	6	6	8	10	10	16
Atlanta.....	33 45	84 23	1,052	25	18	21	11	11	9	9	5	7	7	10	10	17
Augusta.....	33 28	81 54	138	31	17	20	11	13	12	8	8	6	8	11	10	17
Jacksonville.....	30 20	81 39	■	32	14	18	11	10	6	6	5	5	5	11	11	14
Key West.....	24 34	81 49	3	33	12	12	■	■	6	6	5	5	4	5	10	10
Pensacola.....	30 25	87 13	12	24	17	18	11	■	6	6	4	4	5	10	■	12
Montgomery.....	32 23	86 18	196	31	17	20	11	10	7	7	7	6	6	11	10	17
Mobile.....	30 41	88 2	12	33	18	18	12	8	7	7	6	6	8	11	■	17
Vicksburg.....	32 22	90 53	226	31	20	19	11	10	7	10	5	7	9	10	14	24
<i>West Gulf States and Southern Rocky Mountain Slope.</i>																
Little Rock.....	34 45	92 6	299	24	26	21	12	9	9	9	8	9	8	10	16	21
Shreveport.....	32 30	93 40	197	31	22	18	12	9	8	12	8	9	9	10	15	22
New Orleans.....	29 58	90 4	8	33	19	16	10	7	■	7	5	5	■	9	10	16
Palestine.....	31 45	95 40	495	22	16	20	11	7	8	5	4	5	9	10	11	19
El Paso.....	31 47	106 30	3,702	25	13	■	6	9	8	■	8	7	8	7	7	9
San Antonio.....	29 27	98 28	■	25	19	15	17	11	8	16	8	5	■	8	6	9
Galveston.....	29 18	94 50	■	32	25	21	10	10	5	10	6	6	7	8	14	16
<i>North Central district.</i>																
Bismarck.....	46 47	100 38	1,670	29	33	28	32	17	15	11	11	11	14	11	31	■
Moorhead.....	46 52	96 44	907	31	26	21	22	18	13	7	9	13	13	14	28	21
St. Paul.....	44 58	93 3	758	31	27	24	28	17	16	9	14	12	15	18	19	■
Marquette.....	46 34	87 24	656	29	21	31	26	11	15	11	11	12	14	16	8	18
Alpena.....	45 5	83 30	591	31	18	26	23	16	13	10	7	10	9	15	16	18
Detroit.....	42 20	83 3	593	33	22	27	15	15	12	9	10	9	14	15	17	23
Milwaukee.....	43 2	87 54	619	33	24	28	17	14	14	11	10	12	10	23	18	23
La Crosse.....	43 49	91 15	673	31	29	31	27	14	16	10	10	8	12	15	15	29
Huron.....	44 21	98 14	1,287	22	25	21	20	15	14	■	11	11	12	12	27	19
North Platte.....	41 8	100 45	2,803	29	24	26	18	11	11	8	11	10	11	12	19	22
Omaha.....	41 16	95 56	1,037	31	27	24	21	14	16	9	14	10	15	12	21	22
Des Moines.....	41 35	93 37	806	25	27	22	15	11	14	8	15	9	14	12	17	22
Davenport.....	41 30	90 38	580	31	29	29	22	16	14	12	14	12	12	15	15	27
Keokuk.....	40 22	91 26	574	32	27	23	19	16	13	11	14	12	12	13	18	■
Dodge City.....	37 45	100 0	2,490	29	25	22	16	12	11	8	8	9	9	11	18	24
St. Louis.....	38 38	90 12	466	33	25	21	15	18	13	11	12	11	12	14	20	25
Chicago.....	41 53	87 37	595	31	28	23	16	14	14	10	10	9	10	15	16	23
Springfield, Ill.....	39 48	89 39	607	24	27	24	13	11	12	9	12	9	11	13	17	19
Cairo.....	37 0	89 10	313	32	26	22	14	14	■	10	■	■	10	12	18	28
Indianapolis.....	39 46	86 10	711	30	27	22	17	14	13	11	10	9	14	14	15	24

TABLE V.—ABSOLUTE RANGE MONTHLY MEAN TEMPERATURE AT SELECTED STATIONS.—Continued.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record.	Temperatures.											
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
<i>North Central district—Continued.</i>	°	°	Feet.		° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Toledo.....	41 40	81 34	597	33	24	22	16	15	12	8	10	10	12	15	14	20
Cleveland.....	41 30	81 42	659	32	23	21	20	13	14	12	8	11	12	14	17	22
Columbus.....	39 58	83 0	759	25	25	22	18	12	13	9	10	8	13	14	17	20
Cincinnati.....	39 6	84 30	553	33	28	23	16	14	11	12	11	8	12	14	12	23
Louisville.....	38 15	85 45	460	31	25	21	13	16	11	9	10	9	12	13	17	24
Knoxville.....	35 56	83 58	992	33	20	23	14	11	9	8	9	10	11	14	14	23
Nashville.....	36 10	86 47	459	33	23	21	13	11	10	12	8	10	9	12	14	26
Memphis.....	35 9	90 3	268	31	25	21	13	13	9	9	7	9	10	14	17	28
Chattanooga.....	35 4	85 14	700	26	18	20	11	11	9	8	7	7	14	11	11	20
<i>Rocky Mountain and Plateau region.</i>																
Boise City.....	43 37	116 8	2,706	26	20	19	13	12	10	11	6	10	13	13	15	12
Helena.....	46 34	112 4	4,109	24	26	30	20	12	13	12	9	10	13	13	23	29
Cheyenne.....	41 8	104 48	6,056	31	20	22	15	14	10	10	9	7	9	9	20	17
Denver.....	39 45	105 0	5,219	24	20	21	14	13	10	10	10	7	6	10	24	18
Santa Fe.....	35 41	105 57	6,980	30	14	18	21	10	9	7	7	8	9	9	15	16
Winnemucca.....	40 58	117 43	4,287	25	21	25	15	11	13	11	9	11	12	9	15	13
Salt Lake City.....	40 45	111 54	4,293	30	15	19	15	10	12	12	8	8	12	12	16	15
Yuma.....	32 45	114 36	137	28	10	13	14	10	10	10	5	6	10	10	11	13
<i>Pacific coast States.</i>																
Spokane.....	47 40	117 25	1,881	23	20	21	14	9	12	9	8	11	12	11	14	21
Portland.....	45 32	122 43	20	31	15	15	14	9	11	8	6	7	8	9	13	16
Roseburg.....	43 13	123 20	475	26	11	15	12	10	8	10	8	8	9	11	11	11
San Francisco.....	37 48	122 26	28	33	9	10	10	8	9	8	8	7	9	13	7	6
San Diego.....	32 43	117 10	40	32	8	8	8	8	8	8	10	9	11	9	9	13
Red Bluff.....	40 10	122 15	309	26	11	11	11	13	12	11	12	10	21	13	9	8
Los Angeles.....	34 3	118 15	286	26	9	9	10	7	6	8	9	7	8	8	10	8

TABLE VI.—MONTHLY AND ANNUAL MEAN PRECIPITATION FOR SELECTED STATIONS.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record.	Precipitation.											
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
<i>New England and Middle Atlantic States.</i>	°	°	Feet.		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Eastport.....	44 54	66 59	33	31	3.8	3.6	4.5	3.0	3.8	3.4	3.5	3.1	3.0	4.0	4.1	3.6
Portland.....	43 39	70 15	47	32	3.6	3.8	4.0	3.1	3.5	3.3	3.4	3.5	3.3	3.8	3.9	3.6
Boston.....	42 21	71 4	15	31	3.9	3.6	4.3	3.5	3.4	2.9	3.4	4.2	3.0	3.9	4.2	3.4
Block Island.....	41 10	71 36	28	23	4.1	4.4	4.6	3.7	3.8	2.7	3.3	3.4	3.3	4.2	4.1	3.7
New Haven.....	41 18	72 56	25	31	4.0	4.0	4.5	3.5	3.7	2.9	5.0	4.9	3.6	3.9	3.7	3.5
Buffalo.....	42 53	78 53	612	33	3.2	3.0	2.7	2.4	3.2	3.2	3.4	3.1	3.2	3.2	3.4	3.4
Rochester.....	43 8	77 42	498	33	3.2	2.9	3.1	2.4	3.0	3.1	3.1	2.9	2.3	2.8	2.8	2.9
Oswego.....	43 29	76 35	292	33	3.3	2.7	3.0	2.2	2.8	3.6	3.3	2.6	2.9	3.2	3.6	3.8
Albany.....	42 39	73 45	23	31	2.6	2.6	2.8	2.4	3.0	3.7	3.9	4.0	3.2	3.1	2.9	2.7
New York City.....	40 43	74 0	37	33	3.8	3.9	4.1	3.3	3.2	3.3	4.5	4.5	3.5	3.7	3.6	3.4
Erie.....	42 7	80 5	659	30	3.0	3.1	2.8	2.4	3.6	3.9	3.1	3.2	3.6	3.6	3.8	3.1
Pittsburg.....	40 32	80 2	738	31	2.8	2.9	3.0	3.0	3.4	3.7	4.6	3.1	2.5	2.3	2.7	2.8
Philadelphia.....	39 57	75 9	42	31	3.3	3.4	3.4	2.9	3.2	3.2	4.2	4.5	3.3	3.0	3.2	3.0
Atlantic City.....	39 22	74 25	7	28	3.5	3.4	3.7	3.1	3.0	3.1	3.8	4.4	3.2	3.6	3.3	3.9
Baltimore.....	39 18	76 37	103	33	3.2	3.7	4.0	3.3	3.6	3.8	4.7	4.2	3.8	3.0	3.0	3.1
Washington.....	38 54	77 3	75	33	3.4	3.6	4.1	3.2	3.8	4.0	4.5	4.0	3.5	3.1	2.8	3.1
<i>South Atlantic and East Gulf States.</i>																
Lynchburg.....	37 25	79 9	623	33	3.8	3.8	4.0	3.2	4.0	3.7	4.1	4.2	3.8	3.4	2.9	3.1
Norfolk.....	36 51	76 17	10	33	3.4	3.8	4.6	3.9	4.3	4.1	5.9	5.9	4.2	3.6	2.9	3.4
Charlotte.....	35 13	80 51	748	25	4.3	4.6	4.8	3.4	3.9	4.6	5.3	5.2	3.3	3.4	3.0	3.8
Wilmington.....	34 14	77 57	37	33	3.6	3.4	3.6	2.8	4.0	5.6	6.7	7.0	5.4	3.9	2.4	3.1

TABLE VI.—MONTHLY AND ANNUAL MEAN PRECIPITATION FOR SELECTED STATIONS—Continued.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record.	Precipitation.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>South Atlantic and East Gulf States—Continued.</i>	° ,	° ,	Feet.		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Charleston.....	32 47	79 56	11	33	3.6	3.4	3.8	3.2	3.6	5.4	7.4	7.3	5.5	4.0	3.0	3.2	53.4
Atlanta.....	33 45	84 23	1,052	25	5.3	5.2	5.9	3.7	3.3	4.0	4.8	4.5	3.0	2.3	3.5	4.4	49.9
Augusta.....	33 28	81 54	138	32	4.2	4.5	4.9	3.6	3.3	4.6	5.2	5.6	3.7	2.5	3.0	3.4	48.5
Jacksonville.....	30 20	81 39	3	32	3.0	3.4	3.5	2.9	4.0	5.5	6.2	6.2	8.1	5.1	2.5	3.0	53.4
Key West.....	24 34	81 49	3	33	2.0	1.6	1.2	1.2	3.1	4.2	3.7	4.7	7.0	5.4	2.1	1.7	37.9
Pensacola.....	30 25	87 13	12	24	4.0	4.6	5.7	3.2	2.9	5.2	6.7	7.9	4.8	3.8	4.0	4.0	56.8
Montgomery.....	32 23	86 18	196	31	5.0	5.0	6.3	4.5	3.8	4.3	4.6	4.6	2.7	2.3	3.2	4.5	50.8
Mobile.....	30 41	88 2	12	33	4.8	5.3	7.4	4.5	4.2	6.1	6.7	6.9	4.9	3.2	3.5	4.6	62.1
Vicksburg.....	32 22	90 53	226	32	5.6	4.8	6.2	5.2	4.5	4.4	4.4	3.2	3.4	2.6	4.3	5.2	53.8
<i>West Gulf States and Southern Rocky Moun- tain slope.</i>																	
Little Rock.....	34 45	92 6	299	24	5.0	4.5	5.0	4.3	5.2	3.6	4.0	3.6	3.4	2.5	4.6	3.9	49.6
Shreveport.....	32 30	93 40	197	32	4.5	3.9	4.6	4.6	3.9	3.8	3.5	2.1	3.5	3.2	4.2	4.3	46.1
New Orleans.....	29 58	90 4	8	33	4.6	4.7	5.2	5.1	4.0	6.2	6.3	5.7	4.7	3.0	3.8	4.3	57.6
Palestine.....	31 45	95 40	495	22	4.3	3.5	3.9	4.0	5.0	4.0	3.0	2.4	3.3	3.6	3.9	3.6	44.5
El Paso.....	31 47	106 30	3,702	25	0.5	0.4	0.3	0.2	0.4	0.6	2.2	1.6	1.3	0.9	0.4	0.5	9.3
San Antonio.....	29 27	98 28	660	18	1.7	1.9	1.8	2.9	3.0	2.7	2.6	3.1	3.4	1.8	1.8	1.7	28.4
Galveston.....	29 18	94 50	6	33	3.7	3.1	3.1	2.9	3.3	4.6	4.0	5.1	5.7	4.3	4.0	3.8	47.6
<i>North Central district.</i>																	
Bismarck.....	46 47	100 58	1,670	29	0.7	0.6	1.0	2.2	2.6	3.6	2.6	2.1	1.0	1.1	0.6	0.7	18.8
Moorhead.....	46 52	96 44	907	23	0.7	0.8	1.1	2.3	2.6	4.1	3.9	3.0	2.2	2.2	0.9	0.7	24.5
St. Paul.....	44 58	93 3	758	31	1.0	0.6	1.6	2.5	3.3	4.4	3.6	3.4	3.3	2.5	1.2	1.2	28.6
Marquette.....	46 34	87 24	656	33	2.0	1.7	2.0	2.2	3.1	3.4	3.2	2.8	3.7	3.2	2.7	2.4	32.4
Alpena.....	45 5	83 30	591	31	2.3	1.8	1.9	2.2	3.3	3.6	3.1	3.4	3.6	3.7	2.6	2.2	33.7
Detroit.....	42 20	83 3	593	33	1.9	2.3	2.4	2.2	3.3	3.9	3.5	2.7	2.6	2.4	2.6	2.4	32.2
Milwaukee.....	43 2	87 54	619	33	2.0	1.9	2.6	2.6	3.3	3.7	3.1	2.7	3.0	2.2	2.0	1.9	31.0
La Crosse.....	43 49	91 15	673	31	1.1	1.1	1.6	2.4	3.5	4.4	4.1	3.3	4.0	2.5	1.5	1.4	30.9
Huron.....	44 21	98 14	1,287	22	0.5	0.5	1.0	2.8	2.6	3.6	2.8	2.5	1.7	1.3	0.6	0.6	20.5
North Platte.....	41 8	100 45	2,803	29	0.4	0.4	0.8	2.1	2.8	3.2	2.6	2.3	1.4	1.0	0.4	0.5	17.9
Omaha.....	41 16	95 56	1,037	33	0.6	0.7	1.4	3.0	4.4	5.2	4.6	3.5	2.9	2.5	1.0	1.0	30.8
Des Moines.....	41 35	93 37	806	25	1.2	1.1	1.6	2.9	4.8	5.0	3.7	3.5	3.0	2.8	1.5	1.3	32.4
Davenport.....	41 30	90 38	580	32	1.6	1.6	2.2	2.7	4.4	4.1	3.7	3.6	3.2	2.4	1.8	1.6	32.9
Keokuk.....	40 22	91 26	574	32	1.8	1.6	2.4	3.2	4.2	4.4	4.2	3.0	3.8	2.7	2.0	1.8	35.1
Dodge City.....	37 45	100 0	2,490	29	0.5	0.7	0.9	1.8	3.2	3.4	3.2	2.5	1.5	1.5	0.5	0.6	20.3
St. Louis.....	38 38	90 12	466	33	2.2	2.9	3.3	3.4	4.4	4.6	3.6	2.4	2.8	2.3	2.9	2.3	37.1
Chicago.....	41 53	87 37	595	33	2.0	2.3	2.5	2.7	3.5	3.7	3.6	2.8	3.0	2.6	2.6	2.1	33.4
Springfield, Ill.....	39 48	89 39	607	24	2.2	3.0	3.0	3.3	4.7	4.5	2.8	2.7	3.3	2.7	2.8	2.4	37.4
Cairo.....	37 0	89 10	313	32	3.7	3.6	3.9	3.6	3.9	4.4	3.4	2.6	2.5	2.6	4.0	3.4	41.6
Indianapolis.....	39 46	86 10	711	32	2.8	3.3	3.8	3.4	4.0	4.4	4.2	3.2	3.3	2.8	3.7	3.0	41.9
Toledo.....	41 40	83 34	597	33	1.9	2.1	2.2	2.2	3.3	3.4	3.3	2.7	2.4	2.3	2.7	2.3	30.8
Cleveland.....	41 30	81 42	659	33	2.5	2.8	2.8	2.3	3.4	3.8	3.6	2.8	3.5	2.7	2.8	2.6	35.6
Columbus.....	39 58	83 0	759	25	3.0	3.2	3.3	2.9	3.8	3.6	3.6	3.1	2.5	2.3	3.2	2.7	37.2
Cincinnati.....	39 6	84 30	553	33	3.3	3.4	3.6	2.9	3.4	4.0	3.5	3.4	2.4	2.2	3.3	3.0	38.4
Louisville.....	38 15	85 45	460	31	3.9	3.9	4.3	4.0	3.8	4.3	3.8	3.5	2.7	2.6	4.0	3.7	44.5
Knoxville.....	35 56	83 58	992	33	5.1	4.9	5.6	4.7	3.8	4.2	4.1	4.1	2.9	2.6	3.6	4.1	49.7
Nashville.....	36 10	86 47	459	33	4.8	4.8	5.3	4.6	3.5	4.2	4.4	3.4	3.7	2.3	3.8	3.8	48.6
Memphis.....	35 9	90 3	268	33	5.4	5.0	5.7	5.0	4.3	4.5	3.2	3.4	3.0	2.6	4.5	4.2	50.8
Chattanooga.....	35 4	85 14	700	25	5.8	5.3	6.3	4.6	3.8	4.2	3.7	3.8	3.4	2.8	3.6	4.3	51.6
<i>Rocky Mountain and Plateau region.</i>																	
Boise.....	43 37	116 8	2,706	18	1.9	1.6	1.2	1.2	1.3	0.9	0.2	0.2	0.4	1.4	0.9	1.7	12.9
Helena.....	46 34	112 4	4,109	24	1.1	0.7	0.8	1.2	2.0	2.1	1.2	0.6	1.2	0.8	0.8	0.8	13.3
Cheyenne.....	41 8	104 48	6,056	33	0.4	0.5	0.9	1.6	2.2	1.5	2.0	1.5	1.0	0.7	0.4	0.4	13.1
Denver.....	39 45	105 0	5,219	31	0.5	0.5	0.9	2.0	2.5	1.4	1.6	1.4	0.8	0.9	0.5	0.7	13.7
Santa Fe.....	35 41	105 57	6,980	30	0.6	0.7	0.7	0.8	1.2	1.0	2.8	2.4	1.5	1.1	0.7	0.7	14.2
Winnemucca.....	40 58	117 43	4,287	26	1.1	0.9	0.8	0.9	1.0	0.6	0.2	0.2	0.3	0.5	0.7	1.2	8.4
Salt Lake City.....	40 46	111 54	4,293	30	1.3	1.4	1.9	2.1	1.9	0.7	0.5	0.8	0.8	1.5	1.5	1.4	15.8
Yuma.....	32 45	114 36	137	28	0.4	0.5	0.3	0.1	T.	T.	0.1	0.3	0.1	0.2	0.3	0.4	2.7

TABLE VI.—MONTHLY AND ANNUAL MEAN PRECIPITATION FOR SELECTED STATIONS—Continued.

	North latitude.	West longitude.	Altitude.	Years of record.	Precipitation.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>Pacific coast States.</i>	° ' "	° ' "	Feet.		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Spokane.....	47 40	117 25	1,881	23	2.4	2.0	1.4	1.3	1.4	1.5	0.7	0.5	1.0	1.4	2.3	2.4	18.6
Portland.....	45 32	122 43	20	32	6.6	6.0	5.1	3.2	2.4	1.7	0.6	0.7	1.8	3.6	6.5	7.4	45.9
Roseburg.....	43 13	123 20	475	26	5.9	4.7	3.7	2.5	2.0	1.2	0.4	0.4	1.1	2.6	4.3	6.1	34.3
San Francisco.....	37 48	122 26	28	32	4.5	3.4	3.2	1.8	0.7	0.2	T.	T.	0.3	1.3	2.8	4.3	22.5
San Diego.....	32 43	117 10	90	54	1.6	1.9	1.4	0.6	0.4	0.1	0.1	0.1	0.1	0.3	0.9	1.9	9.4
Redbluff.....	40 10	122 15	309	26	4.7	3.5	3.2	2.1	1.3	0.5	T.	0.0	0.6	1.5	3.0	5.3	25.7
Los Angeles.....	34 3	118 15	286	26	2.8	2.8	2.7	1.1	0.5	0.1	T.	T.	T.	0.8	1.5	3.3	15.6

TABLE VII.—AVERAGE NUMBER OF DAYS WITH 0.01 INCH OR MORE OF PRECIPITATION FOR SELECTED STATIONS.

	North latitude.	West longitude.	Altitude.	Years of record.	Days.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>New England and Middle Atlantic States.</i>	° ' "	° ' "	Feet.														
Eastport.....	44 54	66 59	33	31	15	14	15	12	12	12	11	12	10	12	13	14	152
Portland.....	43 39	70 15	47	32	12	11	13	11	12	11	12	11	10	10	11	11	135
Boston.....	42 21	71 4	15	31	12	11	13	11	11	10	11	10	9	10	11	11	130
Block Island.....	41 10	71 36	28	23	13	11	13	11	12	9	10	9	10	10	12	12	132
New Haven.....	41 18	72 56	25	31	13	12	13	11	11	11	12	10	10	10	10	11	134
Buffalo.....	42 53	78 53	612	33	19	17	16	12	13	11	11	10	11	13	19	18	170
Rochester.....	43 8	77 42	498	33	21	18	18	13	14	11	12	12	11	13	16	19	178
Oswego.....	43 29	76 35	292	33	17	15	15	12	12	11	11	10	10	13	17	19	162
Albany.....	42 39	73 45	23	31	13	12	13	11	13	13	13	11	10	10	12	12	143
New York City.....	40 43	74 0	37	33	12	11	13	11	11	11	13	10	9	10	10	11	132
Erie.....	42 7	80 5	659	30	19	16	16	13	13	12	10	10	12	14	17	20	172
Pittsburg.....	40 32	80 2	738	31	16	15	16	13	14	12	13	9	9	10	13	14	154
Philadelphia.....	39 57	79 9	42	31	12	12	13	11	12	10	12	10	9	9	10	10	130
Atlantic City.....	39 22	74 25	7	28	12	11	13	11	11	9	10	10	8	10	10	10	125
Baltimore.....	39 18	76 37	103	33	12	11	13	11	12	10	12	11	9	9	10	11	131
Washington.....	38 54	77 3	75	33	12	6	12	11	12	10	11	11	8	9	10	10	122
Lynchburg.....	37 25	79 9	623	33	11	10	11	10	11	12	11	12	9	7	8	9	121
Norfolk.....	36 51	76 17	10	33	12	11	12	11	12	10	13	12	9	9	9	10	130
<i>South Atlantic and East Gulf States.</i>																	
Charlotte.....	35 13	80 51	748	25	12	11	12	10	11	12	12	12	8	8	9	11	128
Wilmington.....	34 14	77 57	37	33	11	11	11	9	10	12	13	14	10	8	8	10	127
Charleston.....	32 47	79 56	11	33	10	10	10	8	9	11	12	14	10	8	8	9	119
Atlanta.....	33 45	84 23	1,052	25	13	11	12	10	9	11	12	13	8	7	2	10	125
Augusta.....	33 28	81 54	138	32	11	10	12	8	9	11	12	13	7	6	8	9	116
Jacksonville.....	30 20	81 39	3	32	10	9	8	7	9	13	15	14	14	10	8	8	125
Key West.....	24 34	81 49	3	33	8	7	5	4	8	12	13	14	13	16	13	7	120
Pensacola.....	30 25	87 13	12	24	11	11	10	6	7	10	15	14	9	6	7	10	116
Montgomery.....	32 23	86 18	196	31	12	10	11	9	9	12	11	11	8	6	8	11	118
Mobile.....	30 41	88 2	12	33	11	10	11	9	8	12	15	14	9	7	8	10	124
Vicksburg.....	32 22	90 53	226	32	12	11	10	9	8	10	11	9	7	6	9	10	112
<i>West Gulf States and Southern Rocky Mountain slope.</i>																	
Little Rock.....	34 45	92 6	299	24	10	9	11	11	9	10	10	9	7	6	8	8	108
Shreveport.....	32 30	93 40	197	32	11	10	10	9	8	9	9	7	7	6	8	9	103
New Orleans.....	29 58	90 4	8	33	11	10	9	8	9	14	16	14	11	7	9	10	128
Palestine.....	31 45	95 40	495	22	10	10	10	8	9	8	8	7	7	6	8	8	99
El Paso.....	31 47	106 30	3,702	25	3	3	2	1	2	4	8	8	6	4	3	3	47
San Antonio.....	29 27	98 28	660	18	8	8	7	8	7	7	6	7	8	5	7	7	85
Galveston.....	29 18	94 50	6	33	11	10	9	7	6	7	9	10	10	7	8	11	105

TABLE VII.—AVERAGE NUMBER OF DAYS WITH 0.01 INCH OR MORE OF PRECIPITATION FOR SELECTED STATIONS—Cont'd.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record	Days.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>North Central district.</i>	° ' ° ' Feet.																
Bismarck.....	46 47	100 38	1,670	29	9	9	8	10	11	13	11	8	6	7	8	9	109
Moorhead.....	46 52	96 44	907	23	8	9	8	10	10	16	10	9	8	8	7	9	112
St. Paul.....	44 58	93 3	758	31	9	8	7	10	13	12	10	10	10	9	8	10	116
Marquette.....	46 34	87 24	656	33	16	14	14	11	12	12	12	12	13	14	15	16	161
Alpena.....	45 5	83 30	591	31	16	14	13	11	12	12	11	11	12	14	15	16	157
Detroit.....	42 20	83 3	593	33	14	13	13	11	12	12	11	10	9	9	10	12	138
Milwaukee.....	43 2	87 54	619	33	12	11	12	11	12	11	10	9	10	9	10	12	129
La Crosse.....	43 49	91 15	673	31	11	8	10	11	12	12	10	9	10	9	8	10	120
Huron.....	44 21	98 14	1,287	22	7	7	9	10	11	10	9	10	7	7	6	7	100
North Platte.....	41 8	100 45	2,803	29	5	5	6	8	10	10	8	8	5	5	4	5	79
Omaha.....	41 16	95 56	1,037	33	7	7	9	11	12	11	9	8	8	7	4	7	100
Des Moines.....	41 35	93 37	806	25	8	7	9	10	12	11	10	9	9	8	7	9	109
Davenport.....	41 30	90 38	580	32	10	9	10	10	12	12	8	9	9	8	8	9	114
Keokuk.....	40 22	91 26	574	32	8	7	10	10	11	11	9	7	8	8	8	8	105
Dodge City.....	37 45	100 0	2,490	29	4	6	6	7	10	8	8	7	5	5	4	4	74
St. Louis.....	38 38	90 12	466	33	9	10	11	10	12	12	10	8	7	7	9	10	115
Chicago.....	41 53	87 37	595	33	11	11	12	11	12	11	9	9	9	9	11	11	126
Springfield, Ill.....	39 48	89 39	607	24	9	10	11	11	12	12	8	8	9	8	9	10	117
Cairo.....	37 0	89 10	313	32	12	10	12	11	11	11	9	8	7	7	9	11	118
Indianapolis.....	39 46	86 10	711	32	13	12	14	12	13	12	10	9	8	9	12	12	136
Toledo.....	41 40	83 34	597	33	13	12	13	11	12	11	10	9	9	10	12	13	135
Cleveland.....	41 30	81 42	659	33	17	15	15	12	13	12	11	10	11	12	15	16	159
Columbus.....	39 58	83 0	759	25	15	13	14	12	13	12	11	10	9	9	12	14	144
Cincinnati.....	39 6	84 30	553	32	13	12	14	12	12	12	10	9	8	9	11	12	134
Louisville.....	38 15	85 45	460	31	13	11	13	12	12	12	10	8	8	8	10	11	128
Knoxville.....	35 56	83 58	992	33	13	12	13	12	12	13	12	12	8	8	9	11	135
Nashville.....	36 10	86 47	459	33	12	11	13	11	10	12	11	9	7	7	10	11	124
Memphis.....	35 9	90 3	261	33	11	11	12	10	10	10	10	8	7	6	10	10	115
Chattanooga.....	35 4	85 14	700	25	13	12	13	11	11	12	13	12	9	7	9	11	133
<i>Rocky Mountain and Plateau region.</i>																	
Boise.....	43 37	116 8	2,706	18	12	10	10	8	7	3	1	3	3	7	11	10	85
Helena.....	46 34	112 4	4,109	24	10	8	8	8	11	12	8	5	7	6	7	8	98
Cheyenne.....	41 8	104 48	6,056	33	5	6	7	9	12	9	10	10	5	5	5	5	88
Denver.....	39 45	105 0	5,219	31	5	5	7	9	10	7	9	9	5	5	4	5	80
Santa Fe.....	35 41	105 57	6,980	30	6	7	6	6	7	6	13	9	7	5	4	5	81
Winnemucca.....	40 58	117 43	4,287	26	9	9	9	5	8	5	2	1	3	4	5	10	70
Salt Lake City.....	40 46	111 54	4,293	30	10	10	10	10	8	4	4	5	4	7	7	9	88
Yuma.....	32 45	114 36	137	28	2	2	1	0	0	0	1	2	1	1	1	2	13
<i>Pacific coast States.</i>																	
Spokane.....	47 40	117 25	1,881	23	14	12	10	10	10	9	5	3	7	9	13	15	117
Portland.....	45 32	122 43	30	32	20	17	18	15	14	11	4	4	8	13	17	20	161
Roseburg.....	43 13	123 20	475	26	18	13	16	14	12	7	2	2	6	12	14	18	134
San Francisco.....	37 48	122 26	28	32	11	10	10	7	4	2	0	0	2	5	7	11	69
San Diego.....	32 43	117 10	40	32	6	8	7	4	3	1	0	0	0	2	3	5	■
Redbluff.....	40 10	122 15	309	26	11	9	11	8	6	4	0	0	3	4	6	12	74
Los Angeles.....	34 3	118 15	286	26	6	6	7	4	3	1	1	0	0	3	3	5	40

**MONTHLY AND ANNUAL MEAN RELATIVE HUMIDITY
FOR SELECTED STATIONS.**

TABLE VIII.—MONTHLY AND ANNUAL MEAN RELATIVE HUMIDITY FOR 8 A. M. AND 8 P. M. (SEVENTY-FIFTH MERIDIAN TIME) FOR SELECTED STATIONS.

	Humidity.															
	North lati- tude.	West longi- tude.	Alti- tude.	Years of record	January.		February.		March.		April.		May.		June.	
					8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.
<i>New England and Middle Atlan- tic States.</i>			<i>Feet.</i>		<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
Eastport.....	44 54	66 59	33	15	75	73	74	74	75	75	74	74	79	80	82	84
Portland, Me.....	43 39	70 15	47	15	78	71	77	71	73	73	69	71	73	76	75	77
Boston.....	42 21	71 4	15	15	73	70	73	70	71	69	67	66	70	68	72	71
Block Island.....	41 10	71 36	28	1	76	75	75	75	78	80	80	82	84	86	86	88
New Haven.....	41 18	72 56	25	15	74	71	73	72	71	69	74	74	77	76	78	78
Buffalo.....	42 53	78 53	612	15	79	77	79	77	76	73	71	68	72	69	74	70
Rochester.....	43 8	77 42	498	16	80	78	77	76	70	67	70	67	72	67	72	65
Oswego.....	43 29	76 35	292	15	85	81	84	79	79	75	73	69	74	69	76	71
Albany.....	42 39	73 45	23	15	83	79	81	78	80	75	74	65	73	65	75	69
New York City.....	40 43	74 0	37	15	76	72	75	71	74	69	70	65	73	69	76	71
Erie.....	42 7	80 5	659	15	83	79	84	82	81	79	75	73	75	74	75	74
Pittsburg.....	40 32	80 2	738	15	82	75	81	73	80	70	74	62	74	62	75	65
Philadelphia.....	39 57	75 9	42	15	77	70	76	69	72	65	68	60	70	66	72	66
Atlantic City.....	39 22	74 25	7	13	83	81	81	80	81	80	79	81	82	85	83	87
Baltimore.....	39 18	76 37	103	15	75	69	73	67	71	65	65	60	68	65	70	68
Washington.....	38 54	77 3	75	15	77	69	75	66	75	65	70	59	75	68	76	71
Lynchburg.....	37 25	79 9	623	15	71	71	74	65	71	63	68	64	72	69	74	74
Norfolk.....	36 51	76 17	10	15	81	74	80	74	80	75	78	73	80	76	81	78
<i>South Atlantic and East Gulf States.</i>																
Charlotte.....	35 13	80 51	748	15	78	65	76	63	78	62	71	55	69	54	78	66
Wilmington.....	34 14	77 57	37	15	81	74	80	76	81	76	76	74	79	77	81	79
Charleston.....	32 47	79 56	11	15	79	75	79	75	80	76	75	74	75	75	78	79
Atlanta.....	33 45	84 23	1,052	15	82	70	80	66	80	63	74	58	73	56	78	63
Augusta.....	33 28	81 54	138	15	83	67	82	64	80	60	76	55	75	57	80	65
Jacksonville.....	30 20	81 39	3	15	84	75	83	73	81	71	77	69	77	71	80	78
Key West.....	24 34	81 49	3	15	82	80	81	78	77	75	73	73	73	74	76	77
Pensacola.....	30 25	87 13	12	15	81	78	81	79	81	78	78	75	75	73	79	76
Montgomery.....	32 23	86 18	196	15	80	70	81	67	81	63	77	55	76	56	80	61
Mobile.....	30 41	88 2	12	14	88	79	88	79	86	76	84	74	82	71	84	76
Vicksburg.....	32 22	90 53	226	15	80	67	79	65	76	59	79	59	81	62	84	68
<i>West Gulf States and Southern Rocky Mountain slope.</i>																
Little Rock.....	34 45	92 6	299	15	81	68	81	65	77	61	77	57	80	62	82	65
Shreveport.....	32 30	93 40	197	15	81	66	79	62	79	59	81	58	84	63	85	64
New Orleans.....	29 58	90 4	8	15	84	74	85	74	84	70	82	67	80	67	81	72
Palestine.....	31 45	95 40	495	15	83	67	84	64	84	61	84	58	80	65	88	63
El Paso.....	31 47	106 30	3,702	15	62	34	55	27	43	18	36	13	35	13	41	16
San Antonio.....	29 27	98 28	660	15	76	65	75	54	75	50	80	53	83	57	83	52
Galveston.....	29 18	94 50	6	15	86	82	87	83	86	83	85	81	82	77	82	77
<i>North Central district.</i>																
Bismarck.....	46 47	100 58	1,670	15	78	67	79	69	79	66	77	56	76	53	81	59
Moorhead.....	46 52	96 44	903	15	88	86	88	85	87	81	83	64	79	54	83	60
St. Paul.....	44 58	93 3	758	15	84	76	85	76	81	68	75	54	74	51	78	56
Marquette.....	46 34	87 24	658	15	86	84	85	82	82	78	77	74	74	71	75	71
Alpena.....	45 5	83 30	591	15	85	83	85	81	83	78	78	74	77	72	77	73
Detroit.....	42 20	83 3	593	15	85	81	84	78	81	73	74	66	74	65	75	66
Milwaukee.....	43 2	87 54	619	15	79	78	79	76	79	76	75	71	75	68	78	71
La Crosse.....	43 49	91 15	673	15	83	76	82	75	78	70	73	55	74	55	79	64
Huron.....	44 21	98 14	1,287	15	84	74	84	74	82	67	79	54	77	50	81	55
North Platte.....	41 8	100 45	2,803	15	78	63	78	65	78	59	74	51	78	50	79	55
Omaha.....	41 16	95 56	1,037	15	82	71	81	71	79	66	74	54	75	56	79	57
Des Moines.....	41 35	93 37	806	15	81	75	81	73	80	66	76	55	76	53	80	60
Davenport.....	41 30	90 38	580	15	83	77	84	75	80	67	74	57	74	59	78	61
Keokuk.....	40 22	91 20	574	15	76	72	74	70	73	64	70	58	71	59	73	61
Dodge City.....	37 45	100 0	2,490	15	81	64	83	64	78	51	75	46	79	51	79	51

TABLE VIII.—MONTHLY AND ANNUAL MEAN RELATIVE HUMIDITY FOR 8 A. M. AND 8 P. M. (SEVENTY-FIFTH MERIDIAN TIME) FOR SELECTED STATIONS.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record	Humidity.															
					July.		August.		Septem- ber.		October		Novem- ber		Decem- ber		Annual			
					8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.	8 a.m.	8 p.m.
<i>New England and Middle Atlan- tic States.</i>																				
			<i>Feet.</i>		<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	
Eastport.....	44 54	66 59	33	15	83	83	84	84	82	83	79	79	77	77	76	74	78	78	78	
Portland, Me.....	43 39	70 15	47	15	75	78	79	80	80	80	79	77	79	74	78	72	76	76	76	
Boston.....	42 21	71 4	15	15	71	72	76	75	77	76	77	73	77	73	74	70	78	71	71	
Block Island.....	41 10	71 36	28	15	86	88	86	88	83	84	80	79	78	78	75	74	81	81	81	
New Haven.....	41 18	72 56	25	15	80	78	80	80	78	76	76	74	75	72	76	72	76	74	74	
Buffalo.....	42 53	78 53	612	15	75	70	75	68	75	70	74	70	75	73	72	70	75	71	71	
Rochester.....	43 8	77 42	498	16	74	68	77	72	78	74	78	76	78	79	79	79	75	72	72	
Oswego.....	43 29	76 35	292	15	75	71	77	72	77	71	77	72	78	74	83	78	78	74	74	
Albany.....	42 39	73 45	23	15	76	69	75	67	81	74	84	75	83	78	83	80	79	73	73	
New York City.....	40 43	74 0	37	15	77	70	78	73	79	73	77	71	77	72	75	71	76	71	71	
Erie.....	42 7	80 5	659	15	71	65	73	70	80	77	76	73	78	75	82	77	78	75	75	
Pittsburg.....	40 32	80 2	738	15	75	62	78	60	79	64	79	62	79	70	79	73	78	66	66	
Philadelphia.....	39 57	75 9	42	15	73	67	75	68	78	71	76	68	76	70	75	68	73	69	69	
Atlantic City.....	39 22	74 25	7	13	84	88	84	86	84	84	83	81	82	81	82	81	82	83	83	
Baltimore.....	39 18	76 37	103	15	72	68	73	69	76	73	74	69	75	69	74	68	72	68	68	
Washington.....	38 54	77 3	75	15	77	72	80	74	81	76	80	72	79	69	76	67	77	69	69	
Lynchburg.....	37 25	79 9	623	15	75	73	77	77	80	77	80	76	77	71	75	70	75	71	71	
Norfolk.....	36 51	76 17	10	15	82	74	84	81	82	78	83	76	82	73	80	72	81	75	75	
<i>South Atlantic and East Gulf States.</i>																				
Charlotte.....	35 13	80 51	748	15	81	69	84	72	82	67	78	62	79	62	78	64	78	63	63	
Wilmington.....	34 14	77 57	37	15	83	83	84	84	84	81	83	78	83	76	81	74	81	78	78	
Charleston.....	32 47	79 56	11	15	79	80	82	81	82	79	80	76	80	75	80	76	79	77	77	
Atlanta.....	33 45	84 23	1,052	15	82	69	85	71	81	67	78	61	80	66	81	69	80	65	65	
Augusta.....	33 28	81 54	138	15	82	70	85	74	84	69	82	69	86	69	84	69	82	66	66	
Jacksonville.....	30 20	81 39	3	15	81	77	83	80	85	82	84	79	85	79	85	79	82	76	76	
Key West.....	24 34	81 49	3	15	74	75	74	75	77	78	79	78	80	79	82	79	77	77	77	
Pensacola.....	30 25	87 13	12	15	81	77	82	78	80	74	76	69	79	74	82	77	80	76	76	
Montgomery.....	32 23	86 18	196	15	82	67	87	73	83	63	82	60	85	73	80	75	81	65	65	
Mobile.....	30 41	88 2	12	14	85	79	88	80	87	76	85	71	86	76	88	79	86	76	76	
Vicksburg.....	32 22	90 53	226	15	86	72	87	73	84	68	80	61	80	63	81	64	81	65	65	
<i>West Gulf States and Southern Rocky Mountain slope.</i>																				
Little Rock.....	34 45	92 6	299	15	83	65	85	65	84	65	82	60	81	62	81	65	81	63	63	
Shreveport.....	32 30	93 40	197	15	86	66	87	65	85	63	85	60	84	62	81	63	83	63	63	
New Orleans.....	29 58	90 4	8	15	82	74	83	74	82	72	80	68	84	74	84	74	83	72	72	
Palestine.....	31 45	95 40	495	15	88	62	89	63	86	62	85	61	85	64	83	64	85	63	63	
El Paso.....	31 47	106 30	3,702	15	60	29	63	32	63	33	60	30	58	31	58	34	53	26	26	
San Antonio.....	29 27	98 28	600	15	83	50	85	50	83	55	78	51	78	56	75	53	80	54	54	
Galveston.....	29 18	94 50	5	15	81	74	82	75	82	73	79	73	82	78	84	81	83	78	78	
<i>North Central district.</i>																				
Bismarck.....	46 47	100 58	1,670	15	80	53	74	43	78	52	82	63	80	71	78	67	78	60	60	
Moorhead.....	46 52	96 44	903	15	85	63	87	60	85	61	83	68	89	81	89	84	86	71	71	
St. Paul.....	44 58	93 3	758	15	78	54	83	55	82	58	80	62	81	69	84	76	80	63	63	
Marquette.....	46 34	87 24	658	15	74	71	77	75	80	76	82	77	84	81	85	81	80	77	77	
Alpena.....	45 5	83 30	591	15	78	72	83	76	85	79	86	79	86	82	86	83	82	78	78	
Detroit.....	42 20	83 3	593	15	73	62	77	64	80	68	81	70	82	76	84	80	79	71	71	
Milwaukee.....	43 2	87 54	619	15	76	67	78	69	80	71	81	71	80	74	80	76	88	72	72	
La Crosse.....	43 49	91 15	673	15	80	57	84	60	84	64	82	64	81	72	82	76	80	66	66	
Huron.....	44 21	98 14	1,287	15	80	51	83	51	80	49	81	56	81	65	83	73	81	60	60	
North Platte.....	41 8	100 45	2,803	15	81	52	83	53	79	48	78	51	77	68	77	61	78	56	56	
Omaha.....	41 16	95 56	1,037	15	76	55	85	58	78	56	75	54	76	64	81	72	78	61	61	
Des Moines.....	41 35	93 37	806	15	84	60	82	60	77	61	80	59	79	67	91	74	80	64	64	
Davenport.....	41 30	90 38	580	15	76	56	80	59	81	63	81	61	81	69	93	76	80	65	65	
Keokuk.....	40 22	91 26	574	15	70	56	78	61	80	64	79	62	80	69	78	75	75	64	64	
Dodge City.....	37 45	100 0	2,490	15	77	48	79	52	78	47	75	50	77	37	78	59	78	53	53	

TABLE VIII.—MONTHLY AND ANNUAL MEAN RELATIVE HUMIDITY FOR 8 A. M. AND 8 P. M. (SEVENTY-FIFTH MERIDIAN TIME)
FOR SELECTED STATIONS—Continued.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record	Humidity.											
					January.		February.		March.		April.		May.		June.	
					8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.
<i>North Central district—Continued.</i>	° ' ,	° ' ,	<i>Feet.</i>		<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
St. Louis.....	38 38	90 12	465	16	79	88	78	70	77	67	72	59	76	62	76	60
Chicago.....	41 53	87 37	595	15	84	81	84	80	80	76	75	70	75	68	76	71
Springfield, Ill.....	39 48	89 39	606	15	81	73	80	73	78	68	74	60	76	62	77	62
Cairo.....	37 0	89 10	313	15	82	73	80	71	78	66	76	61	79	65	82	69
Indianapolis.....	39 46	86 10	711	15	82	75	80	74	77	67	71	60	72	61	74	61
Toledo.....	41 40	83 34	597	15	85	79	84	77	80	72	75	64	74	63	76	65
Cleveland.....	41 30	81 42	659	16	80	75	79	75	78	73	74	66	75	66	75	67
Columbus.....	39 58	83 0	759	15	84	77	83	74	80	69	74	61	75	62	77	63
Cincinnati.....	39 6	84 30	553	15	80	74	79	69	76	66	71	55	72	57	74	58
Louisville.....	38 15	85 45	460	15	72	63	72	63	75	63	70	55	72	58	74	59
Knoxville.....	35 56	83 58	992	15	67	58	65	51	58	48	60	45	63	47	66	56
Nashville.....	36 10	86 47	459	15	81	64	80	68	76	62	74	56	76	57	78	61
Memphis.....	35 9	90 3	268	15	79	68	78	67	76	65	74	58	77	62	80	65
Chattanooga.....	35 4	85 14	700	15	81	72	78	67	77	63	75	59	79	65	81	71
<i>Rocky Mountain and Plateau region.</i>																
Boise.....	43 37	116 8	2,706	5	84	72	82	63	74	46	72	36	73	36	66	32
Helena.....	46 34	112 4	4,109	15	71	65	72	62	70	55	64	42	66	40	65	39
Cheyenne.....	41 8	104 48	6,056	15	58	49	65	56	65	50	67	46	70	46	66	41
Denver.....	39 45	105 0	5,219	15	58	49	64	49	61	42	62	36	65	38	63	34
Santa Fe.....	35 41	105 57	6,980	16	61	48	61	46	53	31	45	24	47	25	44	22
Winnemucca.....	40 58	117 43	4,287	15	76	64	73	57	66	43	63	36	59	31	51	23
Salt Lake City.....	40 46	111 54	4,293	15	77	73	74	66	65	53	57	40	57	37	48	28
Yuma.....	32 45	114 36	137	15	55	45	57	41	58	34	53	25	55	26	55	24
<i>Pacific coast States.</i>																
Spokane.....	47 40	117 25	1,881	15	88	80	85	69	81	52	75	40	75	39	70	32
Portland, Oreg.....	45 32	122 43	20	15	89	81	88	73	86	62	85	56	86	54	84	53
Roseburg.....	43 13	123 20	475	15	92	82	92	70	90	61	89	53	90	51	89	47
San Francisco.....	37 48	122 26	28	15	86	75	85	70	85	71	85	71	87	72	89	72
San Diego.....	32 43	117 10	40	15	73	73	78	74	81	74	82	73	82	75	84	76
Redbluff.....	40 10	122 15	309	15	87	68	82	56	82	53	76	43	79	38	59	26
Los Angeles.....	34 3	118 15	286	15	67	64	73	63	80	65	82	63	87	65	87	61

TABLE VIII.—MONTHLY AND ANNUAL MEAN RELATIVE HUMIDITY FOR 8 A. M. AND 8 P. M. (SEVENTY-FIFTH MERIDIAN TIME) FOR SELECTED STATIONS—Continued.

	North latitude.	West longitude.	Altitude.	Years of record.	Humidity.															
					July.		August.		September.		October.		November.		December.		Annual.			
					8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.
<i>North Central district—Continued.</i>			<i>Fect.</i>		<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>	<i>P. ct.</i>
St. Louis.....	38 38	90 12	465	16	73	58	77	59	78	61	76	57	77	65	77	69	76	63		
Chicago.....	41 53	87 37	595	15	73	67	74	70	74	67	76	67	80	74	83	79	78	72		
Springfield, Ill.....	39 48	89 30	606	15	75	57	79	60	80	62	79	57	79	66	79	74	78	65		
Cairo.....	37 0	89 10	313	15	81	69	84	70	84	71	83	66	80	68	81	71	81	68		
Indianapolis.....	39 46	86 10	711	15	69	57	75	57	76	59	78	59	79	69	80	80	76	65		
Toledo.....	41 40	83 34	597	15	74	61	77	64	79	66	80	68	82	73	84	77	79	69		
Cleveland.....	41 30	81 42	659	16	69	64	76	66	78	69	76	69	76	73	77	74	76	70		
Columbus.....	39 58	83 0	759	15	75	58	78	61	79	61	80	64	82	72	83	76	79	67		
Cincinnati.....	39 6	84 30	553	15	74	56	77	56	78	58	79	59	78	68	80	72	76	62		
Louisville.....	38 15	85 45	460	15	73	57	76	59	77	58	77	57	76	64	76	66	74	60		
Knoxville.....	35 56	83 58	992	15	67	55	69	57	68	54	68	50	61	48	67	57	65	52		
Nashville.....	36 10	86 47	459	15	77	61	82	63	83	60	82	57	81	74	81	69	79	63		
Memphis.....	35 9	90 3	268	15	82	68	84	69	81	65	80	61	80	63	79	68	79	65		
Chattanooga.....	35 4	85 14	700	15	82	72	85	74	85	72	85	68	81	73	80	71	81	69		
<i>Rocky Mountain and Plateau region.</i>																				
Boise.....	43 37	116 8	2,706	5	54	21	56	26	63	31	73	45	76	63	82	73	72	45		
Helena.....	46 34	112 4	4,109	15	59	30	58	27	63	37	64	46	66	59	70	64	66	47		
Cheyenne.....	41 8	104 48	6,056	15	65	38	66	38	60	34	59	42	58	47	56	49	63	45		
Denver.....	39 45	105 0	5,219	15	63	36	63	33	59	30	58	34	55	41	56	48	61	39		
Santa Fe.....	35 41	105 57	6,980	16	58	35	59	35	58	34	56	37	54	42	61	47	55	36		
Winnemucca.....	40 58	117 43	4,287	15	37	16	34	14	42	21	55	33	67	47	77	63	58	37		
Salt Lake City.....	40 46	111 54	4,293	15	44	24	44	26	47	30	56	46	65	59	73	70	59	46		
Yuma.....	32 45	114 36	137	15	61	35	65	40	62	36	59	39	53	42	54	48	57	36		
<i>Pacific coast States.</i>																				
Spokane.....	47 40	117 25	1,881	15	64	25	64	25	74	35	82	49	86	74	87	81	78	50		
Portland, Oreg.....	45 32	122 43	20	15	84	45	86	48	88	56	91	68	90	80	89	82	87	63		
Roseburg.....	43 13	123 20	475	15	87	38	87	38	91	46	95	61	92	76	93	83	91	59		
San Francisco.....	37 48	122 26	28	15	91	77	93	79	89	73	87	72	85	71	85	75	87	73		
San Diego.....	32 43	117 10	40	15	87	76	85	76	85	78	81	76	72	73	73	73	80	75		
Redbluff.....	40 10	122 15	309	15	49	18	49	20	57	28	67	38	75	55	87	70	71	51		
Los Angeles.....	34 3	118 15	286	15	90	62	87	63	82	63	78	68	64	65	61	64	78	64		

TABLE IX.—MEAN MONTHLY AND ANNUAL PERCENTAGE OF SUNSHINE.

	North lati- tude.	West longi- tude.	Alti- tude.	Years of record	Sunshine.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>New England and Mid- dle Atlantic States.</i>	° ' ° ' Feet.				P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
Eastport.....	44 54 66 59	33	10	48	50	47	52	48	49	54	54	55	49	37	45	49	49
Portland.....	43 39 70 15	47	10	57	60	57	60	58	61	65	66	64	54	46	53	58	58
Boston.....	42 21 71 4	15	10	51	57	53	53	57	60	60	60	62	54	45	52	55	55
Buffalo.....	42 53 78 53	612	14	31	42	49	55	55	66	65	66	60	48	27	24	49	49
Rochester.....	43 8 77 42	498	10	30	39	46	56	58	63	64	60	59	46	27	21	47	47
Albany.....	42 39 73 45	23	7	43	59	55	60	60	65	61	58	64	55	39	34	54	54
New York City.....	40 43 74 0	37	10	53	58	54	57	56	60	57	60	60	52	51	52	56	56
Erie.....	42 7 80 5	659	6	20	33	41	55	58	62	69	63	57	46	24	14	45	45
Pittsburg.....	40 32 80 2	738	7	23	27	55	43	53	58	62	59	57	54	32	25	44	44
Philadelphia.....	39 57 75 9	42	14	50	53	51	55	58	61	63	63	66	60	53	55	57	57
Atlantic City.....	39 22 74 25	7	7	55	59	53	58	60	66	72	70	72	60	55	58	62	62
Baltimore.....	39 18 76 37	103	10	50	59	57	60	54	62	62	63	65	60	51	50	58	58
Washington.....	38 54 77 3	75	14	48	50	48	53	55	63	64	65	68	60	51	54	57	57
<i>South Atlantic and East Gulf States.</i>																	
Wilmington.....	34 14 77 57	37	10	55	56	59	65	67	64	57	61	70	66	63	58	62	62
Charleston.....	32 47 79 56	11	7	51	48	53	63	66	61	54	51	57	55	58	50	56	56
Atlanta.....	33 45 84 23	1,052	19	48	54	53	65	72	70	82	61	67	67	59	52	61	61
Jacksonville.....	30 20 81 39	3	6	50	53	65	76	73	66	61	64	53	52	52	50	60	60
Vicksburg.....	32 22 90 53	226	10	46	47	57	70	73	70	72	71	78	72	62	50	64	64
<i>West Gulf States and southeastern Rocky Mountain slope.</i>																	
Little Rock.....	34 45 92 6	299	10	48	53	54	65	63	73	72	81	74	71	56	53	64	64
New Orleans.....	29 58 90 4	8	14	46	44	50	54	65	55	50	51	64	64	51	47	53	53
Galveston.....	29 18 94 50	6	14	47	44	47	58	66	72	70	67	68	73	59	51	60	60
<i>North Central district.</i>																	
Bismarck.....	46 47 100 58	1,670	10	51	56	53	56	59	60	69	66	63	60	49	46	57	57
St. Paul.....	44 58 93 3	758	8	49	55	49	58	55	59	66	59	61	52	44	44	54	54
Detroit.....	42 20 83 3	593	13	36	42	48	53	57	66	70	65	64	57	36	31	52	52
Huron.....	44 2 98 14	1,287	6	63	70	60	64	67	66	72	65	62	59	58	52	63	63
Omaha.....	41 16 95 56	1,037	7	60	56	54	60	60	65	74	68	67	59	54	49	60	60
Des Moines.....	41 35 93 37	806	10	55	58	54	59	60	62	71	68	63	66	56	47	60	60
Dodge City.....	37 45 100 0	2,490	14	65	63	65	66	64	71	74	79	75	76	66	66	69	69
St. Louis.....	38 38 90 12	466	13	53	51	52	58	63	67	70	71	71	70	52	49	60	60
Chicago.....	41 53 87 37	595	10	46	53	51	62	63	68	71	68	63	61	42	38	57	57
Indianapolis.....	39 46 86 10	711	7	43	47	40	52	57	61	72	64	67	63	46	39	54	54
Cleveland.....	41 30 81 42	659	13	27	29	40	49	52	60	66	60	59	50	25	22	45	45
Columbus.....	39 58 83 0	759	10	35	44	44	59	61	65	71	70	65	60	39	32	54	54
Cincinnati.....	39 6 84 30	553	14	14	40	41	42	54	61	71	75	72	72	66	43	38	38
Louisville.....	38 15 85 45	460	10	43	46	49	57	63	67	70	73	70	71	50	42	58	58
Knoxville.....	35 56 83 58	992	6	41	45	46	54	64	62	66	67	66	67	50	46	56	56
Nashville.....	36 10 86 47	459	7	45	47	49	61	68	61	71	72	74	71	53	44	60	60
Chattanooga.....	35 4 85 14	700	20	44	44	40	56	62	61	63	62	67	65	52	43	55	55
<i>Rocky Mountain and Plateau region.</i>																	
Boise.....	43 37 116 8	2,706	5	33	45	53	55	64	76	87	82	79	63	45	45	61	61
Helena.....	46 34 112 4	4,109	10	43	48	53	57	54	60	73	74	61	62	42	41	56	56
Cheyenne.....	41 8 104 48	6,056	7	70	60	61	62	59	65	69	67	71	70	65	62	65	65
Denver.....	39 45 105 0	5,219	14	73	67	67	68	61	69	67	69	75	76	71	68	69	69
Santa Fe.....	35 41 105 57	6,980	13	74	73	75	78	76	79	69	72	76	80	78	76	76	76
Salt Lake City.....	40 46 111 54	4,293	14	43	44	52	59	64	79	81	77	79	69	55	44	62	62
<i>Pacific coast States.</i>																	
Spokane.....	47 40 117 25	1,881	7	22	35	52	59	61	69	77	72	60	48	49	18	52	52
Portland.....	45 32 122 43	20	14	31	36	41	43	49	69	61	49	44	23	20	22	41	41
San Francisco.....	37 48 122 26	28	9	53	56	60	70	67	76	71	60	67	67	57	56	63	63
San Diego.....	32 43 117 10	40	14	70	70	66	70	55	58	68	71	72	70	76	74	68	68
Los Angeles.....	34 3 118 15	286	7	68	73	69	70	60	67	78	76	76	75	79	80	73	73

GENERAL TABLES.

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TABLE X.—PREVAILING WINDS FOR SELECTED STATIONS.

	North lati- tude.	West longi- tude.	Altitude.	Years of record.	Winds.												
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
<i>New England and Middle Atlantic States.</i>																	
	° ' "	° ' "	Feet.														
Eastport.....	44 54	66 50	33	31	NW.	NW.	N(e).	S.	SW.	S.	S.	SW.	SW.	SW.	W.	NW.	SW.
Portland.....	43 39	70 15	47	32	NW.	NW.	NW.	NW.	S.	S.	S.	S.	S.	NW.	NW.	NW.	NW.
Boston.....	42 21	71 4	15	31	W.	W.	W.	W.	SW.	SW.	SW.	SW.	SW.	W.	NW.	W.	W.
Block Island.....	41 10	71 36	28	23	NW.	NW.	NW.	SW.	SW.	SW.	SW.	SW.	SE.	NE.	NW.	SW.	NW.
New Haven.....	41 18	72 56	25	31	N.	N.	NW.	NW.	S.	S.	S.	S.	SW.	N.	N.	N.	N.
Buffalo.....	42 53	78 53	612	33	W.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	W.	W.	SW.
Rochester.....	43 8	77 42	498	33	SW.	SW.	W. ^a	NW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Oswego.....	43 29	76 35	292	33	S.	NW.	NW.	W.	W.	W.	W.	S.	S.	S.	S.	S.	S.
Albany.....	42 39	73 45	23	31	S.	NW.	NW.	NW.	S.	S.	S.	S.	S.	S.	S.	S.	S.
New York City.....	40 43	74 0	37	33	NW.	NW.	NW.	NW.	NW.	SW.	SW.	NW.	NW.	NW.	NW.	NW.	NW.
Erie.....	42 7	80 5	659	30	SW.	W.	W.	W.	W.	SW.	W.	S.	S.	S.	S.	SW.	W.
Pittsburg.....	40 32	80 2	738	31	NW.	NW.	NW.	NW.	NW.	NW.	NW.	N.	NW.	NW.	NW.	NW.	NW.
Philadelphia.....	39 57	75 9	42	31	NW.	NW.	NW.	NW.	SW.	SW.	SW.	SW.	SW.	NW.	NW.	NW.	SW.
Atlantic City.....	39 22	74 25	7	28	NW.	NW.	NW.	SW.	SW.	SW.	SW.	SW.	SW.	NW.	NW.	NW.	NW.
Baltimore.....	39 18	76 37	103	31	W.	W.	NW.	SE.	SE.	SW.	SW.	SW.	SE.	SE.	W.	W.	SE.
Washington.....	38 54	77 3	75	33	NW.	NW.	NW.	NW.	S.	S.	S.	S.	S.	NW.	NW.	NW.	NW.
Lynchburg.....	37 25	79 9	623	33	SW. ^a	NW.	NW.	NW.	NE.	SW.	SW.	NE.	NE.	NW. ^b	SW.	NW.	NW.
Norfolk.....	36 51	76 17	10	33	N.	N. ^c	NE.	NE.	S.	SW.	SW.	NE.	NE.	NE.	N.	N.	NE.
<i>South Atlantic and East Gulf States.</i>																	
Charlotte.....	35 13	80 51	748	25	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	NE.	NE.	SW.
Wilmington.....	34 14	77 57	37	33	NE.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	NE.	SW.
Charleston.....	32 47	79 56	11	33	N.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	N.	SW.
Atlanta.....	33 45	84 23	1,052	25	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	E.	NW.	NW.	NW.	NW.
Augusta.....	33 28	81 54	138	32	W.	W.	W.	W.	SE.	S.	SE.	NE.	NE.	NE.	NW.	W.	W.
Jacksonville.....	30 20	81 39	3	32	NE.	NE.	SW.	NE.	NE. ^d	SW.	SW.	SW. ^d	NE.	NE.	NE.	N. ^e	NE.
Key West.....	24 34	81 49	3	33	NE.	NE.	SE.	E.	E.	SE.	E.	SE.	E.	NE.	NE.	NE.	NE.
Pensacola.....	30 25	87 13	12	24	N.	NE.	SE.	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	N.	SW.
Montgomery.....	32 23	86 18	196	31	NW.	N.	NW.	SW.	SW.	SW.	SW.	SE.	E.	E.	E.	NW.	SW.
Mobile.....	30 41	88 2	12	33	N.	N.	S.	S.	S.	S.	S.	S.	N.	N.	N.	N.	N.
Vicksburg.....	32 22	90 53	226	32	SE.	SE.	SE.	SE.	SE.	SE.	SW.	SW.	SE.	SE.	SE.	SE.	SE.
<i>West Gulf States and southeastern Rocky Mountain slope.</i>																	
Little Rock.....	34 45	92 6	299	24	NW.	NW.	NW.	S.	S.	S.	SW.	NE.	NE.	NE.	NE.	NW.	S.
Shreveport.....	32 30	93 40	197	32	S.	S.	S.	S.	S.	S.	S.	SE.	SE.	SE.	S.	S.	S.
New Orleans.....	29 58	90 4	8	33	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SW.	NE.	NE.	N.	N.	SE.
Palestine.....	31 45	95 40	405	22	S.	S.	S.	S.	S.	S.	S.	S.	NE.	NE.	S.	S.	S.
El Paso.....	31 47	106 30	3,702	25	NW.	NW.	NW.	NW.	NW. ^e	E.	E.	E.	E.	E.	NW.	NW.	NW.
San Antonio.....	29 27	98 28	660	18	N.	N.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	N.	SE.
Galveston.....	29 18	94 50	6	33	SE.	SE.	SE.	SE.	SE.	S.	S.	S.	SE.	SE.	SE.	SE.	SE.
<i>North Central district.</i>																	
Bismarck.....	46 47	100 38	1,670	29	NW.	NW.	NW.	N. ^a	NW.	NW.	NW.	E.	NW.	NW.	NW.	NW.	NW.
Moorhead.....	46 52	96 44	907	23	NW.	NW.	N.	N.	N.	SE.	S.	SE.	SE.	SE.	NW.	S.	SE.
St. Paul.....	44 58	93 3	758	31	NW.	NW.	NW.	NW.	NW.	SE.	SE.	NW.	SE.	SE.	SE.	NW.	NW.
Marquette.....	46 34	87 24	656	33	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	W.	W.	NW.
Alpena.....	45 5	83 30	501	31	W.	W.	NW.	SE.	SE.	SE.	NW.	NW.	NW.	NW.	NW.	W.	NW.
Detroit.....	42 20	83 3	593	33	SW.	SW.	W.	NE.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Milwaukee.....	43 2	87 54	619	33	W. ^a	W.	NW.	NE.	N.	SE.	SW.	SW.	SW.	SW.	SW.	W.	SW.

^a Also NW.^b Also S.^c Also NE.^d Also SE.^e Also W.

TABLE X.—PREVAILING WINDS FOR SELECTED STATIONS—Continued.

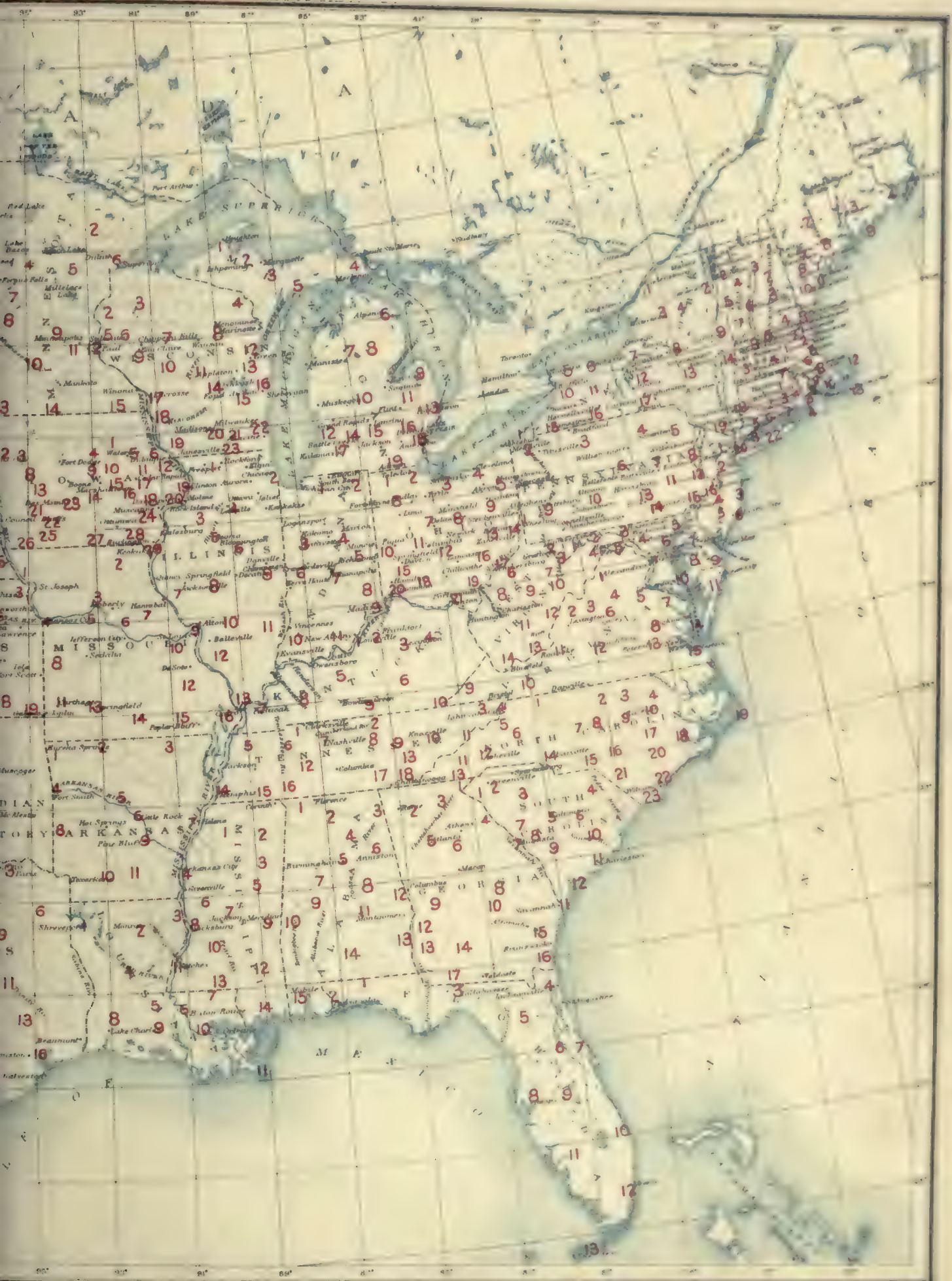
	North lati- tude.	West longi- tude.	Altitude. Feet.	Years of record.	Winds.												Annual.
					Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
<i>North Central district—Continued.</i>																	
La Crosse.....	43 49	91 15	673	31	S.	S.	N.	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.
Huron.....	44 21	98 14	1,287	22	NW.	NW.	NW.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	NW.	SE.
North Platte.....	41 8	100 45	2,803	29	W.	NW.	NW.	NW.	SE.	SE.	SE.	SE.	SE.	NW.	NW.	W.	NW.
Omaha.....	41 16	95 56	1,037	33	NW.	NW.	NW.	NW. ^a	SE.	SE.	SE.	SE.	SE. ^b	S.	NW.	NW.	SE.
Des Moines.....	41 35	93 37	806	25	NW.	NW.	NW.	SE	N.	SW.	SW.	SW.	SW.	N.	NW.	NW.	NW.
Davenport.....	41 30	90 38	580	32	NW.	NW.	NW.	NE.	SW.	SW.	SW.	SW.	SW.	NW.	NW.	NW.	NW.
Keokuk.....	40 22	91 26	574	32	NW.	NW.	NW.	SE.	S.	S.	S.	S.	S.	NW.	NW.	NW.	NW.
Dodge City.....	37 45	100 0	2,490	29	NW.	NW.	NW.	SE.	S.	SE.	SE.	S.	S.	SE.	N.	NW.	S.
St. Louis.....	38 38	90 12	466	31	NW.	NW.	NW.	SE.	S.	S.	S.	S.	S.	S.	S.	S.	S.
Chicago.....	41 53	87 37	595	31	SW.	W.	NE. ^c	NE.	NE.	NE.	SW.	NE. ^c	SW.	S.	SW.	SW.	SW.
Springfield, Ill.....	39 48	89 39	607	24	NW.	NW.	NW.	S.	S.	S.	SW.	S.	S.	S.	S.	S.	S.
Cairo.....	37 0	89 10	313	32	S.	N.	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.
Indianapolis.....	39 46	86 10	711	32	SW.	W.	NW.	NW.	S.	SW.	SW.	NW.	S.	S.	S.	S.	S.
Toledo.....	41 40	83 34	597	30	SW.	W.	W.	NE.	SW.	W.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Cleveland.....	41 30	81 42	659	33	SW.	SW.	W.	W.	SE.	SE.	SE.	SE.	SE.	SE.	SW.	SW.	SE.
Columbus.....	39 58	83 0	759	25	SW.	W.	W.	SW.	SW.	SW.	SW.	SW.	S.	SW.	SW.	SW.	SW.
Cincinnati.....	39 6	84 30	553	32	SW.	NW.	NW.	SE.	SE.	SE.	SW.	NE.	SE.	SE.	SE.	SW.	SE.
Louisville.....	38 15	85 45	460	31	SW.	S.	W. ^c	S.	S.	S.	SW.	N.	N.	N.	N.	SW.	S.
Knoxville.....	35 56	83 58	992	33	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	NE.	NE.	SW.
Nashville.....	36 10	86 47	459	33	NW.	NW.	NW.	NW.	W.	NW.	SW.	W.	NW.	NW.	NW.	NW.	NW.
Memphis.....	35 9	90 3	268	33	NW.	NW.	NW.	SE.	SE.	SW.	SW.	SW.	N.	NW.	SE.	NW.	NW.
Chattanooga.....	35 4	85 14	700	25	NE.	NW.	NW.	S.	SW.	SW.	SW.	NE.	NE.	NE.	S.	NW.	NE.
<i>Rocky Mountain and Plateau region.</i>																	
Boise.....	43 37	116 8	2,706	18	SE.	SE.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	SE.	SE.	NW.
Helena.....	46 34	112 4	4,109	24	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Cheyenne.....	41 8	104 48	6,056	33	NW.	NW.	NW.	NW.	NW.	NW.	S.	NW.	NW.	NW.	NW.	NW.	NW.
Denver.....	39 45	105 0	5,219	31	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.	S.
Santa Fe.....	35 14	105 57	6,980	30	NE.	NE.	SW.	SW.	SW.	SW.	SE.	SE.	SE.	SE.	NE.	NE.	SE.
Winnemucca.....	40 58	117 43	4,287	26	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	SW.
Salt Lake City.....	40 46	111 54	4,293	30	SE.	SE.	NW.	NW.	NW.	NW.	SE.	SE.	SE.	SE.	SE.	SE.	SE.
Yuma.....	32 45	114 36	137	28	N.	N.	W.	W.	W.	SW.	S.	S.	NE.	NE.	N.	N.	N.
<i>Pacific coast States.</i>																	
Spokane.....	47 40	117 25	1,881	23	S.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	SW. ^b	SW.	SW.
Portland.....	45 32	122 43	20	32	SE.	S.	S.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	S.	S.	NW.
Roseburg.....	43 13	123 20	475	26	S.	NW.	SW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	S.	S.	NW.
San Francisco.....	37 48	122 26	28	32	N.	W.	W.	W.	W.	W.	SW.	SW.	W.	W.	W.	N.	W.
San Diego.....	32 43	117 10	40	32	NW.	NW.	NW.	NW.	W.	SW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.
Red Bluff.....	40 10	122 15	309	26	N.	N.	N.	SE.	SE.	SE.	N.	SE.	N.	N.	N.	N.	N.
Los Angeles.....	34 3	118 15	286	26	NE.	NE.	W.	W.	W.	W.	W.	W.	W.	W.	W.	NE.	W.

^a Also SE.^b Also S.^c Also SW.





ATIC STATIONS.





LOCATION OF CLIMATOLOGICAL STATIONS.

The numbers on Plate XXXIII show the location of the individual climatological stations which appear in this report. The name of the station will be found in the list following. The arrangement of the stations and the numbering is geographical rather than alphabetical. Station No. 1 in any State or Territory will always be found in the northwestern corner of the State, No. 2 will be in about the same latitude, but farther eastward, and so on until the northern tier of counties has been exhausted. The next consecutive number will be found in the western part of the State but south of the first zone. In like manner a second or third tier of counties is exhausted, as the case may be, concluding finally in the southeastern corner of the State.

The report for each State contains a list of the counties in that State at the end of 1903. In selecting the stations regard was had, first, for geographic position and, second, for the character of the observations and the continuity of the record. In case a station is not given for any county, reference is made to the nearest county for which observations are available.

At the end of the text on the climate of each State or Territory will be found a summary of the principal climatic elements for that State or Territory. The latter will serve as an easy reference to the distinctive climatic features of different portions of the State or Territory.

LIST OF CLIMATOLOGICAL STATIONS.^a

[Key to Plate XXXIII.]

ALABAMA.

1. Florence.
2. Decatur.
3. Valley Head.
4. Oneonta.
5. *Birmingham.*
6. Anniston.
7. Tuscaloosa.
8. Goodwater.
9. Greensboro.
10. Pushmataha.
11. *Montgomery.*
12. Opelika.
13. Eufaula.
14. Evergreen.
15. *Mobile.*

ARIZONA.

1. Fort Defiance.
2. Fort Mohave.
3. Holbrook.
4. Signal.
5. Prescott.
6. *Phoenix.*
7. Fort Apache.
8. *Yuma.*
9. Dudleyville.
10. Oracle.
11. Fort Grant.
12. Tucson.
13. Fort Huachuca.

ARKANSAS.

1. Fayetteville.
2. Dodd City.
3. Pocahtontas.
4. *Fort Smith.*
5. Conway.
6. *Little Rock.*
7. Helena.
8. Dallas.
9. Pine Bluff.
10. Camden.
11. Warren.

CALIFORNIA.

1. Sisson.
2. Cedarville.
3. *Eureka.*
4. Redding.
5. Susanville.
6. Redbluff.
7. Chico.

CALIFORNIA—continued.

8. La Porte.
9. Ukiah.
10. Summit.
11. Auburn.
12. Davisville.
13. *Sacramento.*
14. Napa.
15. *San Francisco.*
16. Livermore.
17. San Jose.
18. Merced.
19. Santa Cruz.
20. Hollister.
21. *Fresno.*
22. *Independence.*
23. King City.
24. Visalia.
25. *San Luis Obispo.*
26. Bakersfield.
27. Santa Barbara.
28. *Los Angeles.*
29. Redlands.
30. Needles.
31. Salton.
32. *San Diego.*

COLORADO.

1. Walden.
2. Fort Collins.
3. Leroy.
4. Meeker.
5. Pagoda.
6. Silt.
7. Breckinridge.
8. *Denver.*
9. Cope.
10. *Grand Junction.*
11. Colorado Springs.
12. Hamps.
13. Montrose.
14. Gunnison.
15. Salida.
16. *Pueblo.*
17. Las Animas.
18. Saguache.
19. Durango.
20. San Luis.
21. Hoehne.
22. Blaine.

CONNECTICUT.

1. Storrs.
2. Southington.
3. Colchester.
4. Waterbury.
6. New London.
7. *New Haven.*
8. Norwalk.

DELAWARE AND MARYLAND.

1. Grantsville.
2. Cumberland.
3. Green Spring Furnace.
4. New Market.
5. Darlington.
6. *Baltimore.*
7. Chestertown.
8. Easton.
9. Millsboro.
10. Solomons.
11. Princess Anne.

DISTRICT OF COLUMBIA.

1. Washington.

FLORIDA.

1. De Funiak Springs.
2. *Pensacola.*
3. Tallahassee.
4. *Jacksonville.*
5. Archer.
6. Eustis.
7. New Smyrna.
8. *Tampa.*
9. Bartow.
10. *Jupiter.*
11. Myers.
12. Miami.
13. *Key West.*

GEORGIA.

1. Clayton.
2. Adairsville.
3. Dahlonega.
4. Elberton.
5. *Atlanta.*
6. Covington.
7. *Augusta.*
8. Harrison.
9. Talbottom.
10. Dudley.

^a Italic indicates regular Weather Bureau station.

GEORGIA—continued.

11. *Savannah.*
12. Lumpkin.
13. Morgan.
14. Poulan.
15. Jesup.
16. Way Cross.
17. Thomasville.

IDAHO.

1. Porthill.
2. Murray.
3. Moscow.
4. Lake.
5. Payette.
6. *Boise.*
7. Soldier.
8. Blackfoot.
9. Garnet.
10. American Falls.
11. *Pocatello.*
12. Chesterfield.
13. Oakley.

ILLINOIS.

1. Winnebago.
2. *Chicago.*
3. Galva.
4. Ottawa.
5. Peoria.
6. Bloomington.
7. Griggsville.
8. *Springfield.*
9. Philo.
10. Greenville.
11. Olney.
12. Tilden.
13. *Cairo.*

INDIANA.

1. South Bend.
2. Angola.
3. Lafayette.
4. Marion.
5. Farmland.
6. Rockville.
7. *Indianapolis.*
8. Connersville.
9. Vevay.
10. Princeton.
11. Marengo.

INDIAN AND OKLAHOMA TERRITORIES.

1. Beaver.
2. Jefferson.
3. Stillwater.
4. Arapaho.
5. Kingfisher.
6. *Oklahoma.*
7. Mangum.
8. Fort Sill.
9. Haldton.
10. Lehigh.

IOWA.

1. Charles City.
2. Larrabee.
3. Alta.
4. Hampton.
5. Fayette.
6. Elkader.
7. *Sioux City.*
8. Sac City.
9. Iowa Falls.
10. Grundy Center.
11. Independence.
12. *Dubuque.*
13. Carroll.
14. Newton.
15. Belle Plaine.
16. Amana.
17. Cedar Rapids.
18. Iowa City.
19. Clinton.
20. *Davenport.*
21. Atlantic.
22. Greenfield.
23. *Des Moines.*
24. Washington.
25. Corning.
26. Clarinda.
27. Corydon.
28. Bonaparte.
29. *Keokuk.*

KANSAS.

1. Colby.
2. *Concordia.*
3. Atchison.
4. Minneapolis.
5. Agricultural College.
6. *Topeka.*
7. Wallace.
8. McPherson.
9. Lebo.
10. Garden City.
11. *Dodge City.*
12. Macksville.
13. Hutchinson.
14. *Wichita.*
15. Eureka Ranch.
16. Viroqua.
17. Englewood.
18. Independence.
19. Columbus.

KENTUCKY.

1. *Louisville.*
2. Shelbyville.
3. *Lexington.*
4. Mount Sterling.
5. Leitchfield.
6. Eaubank.
7. Paducah.
8. Earlington.
9. Edmonton.
10. Middleboro.

LOUISIANA.

1. *Shreveport.*
2. Monroe.
3. Lake Providence.
4. Alexandria.
5. Melville.
6. Baton Rouge.
7. Amite.
8. Lake Charles.
9. New Iberia.
10. *New Orleans.*
11. Port Eads.

MAINE.

1. Fairfield.
2. Mayfield.
3. Orono.
4. Rumford Falls.
5. *Eastport.*
6. North Bridgton.
7. Lewiston.
8. Gardiner.
9. Bar Harbor.
10. Cornish.
11. *Portland.*

MASSACHUSETTS.

1. Lawrence.
2. Fitchburg.
3. Pittsfield.
4. Amherst.
5. Blue Hill Observatory.
6. *Boston.*
7. Monson.
8. Middleboro.
9. Fall River.
10. New Bedford.
11. Hyannis.
12. Provincetown.
13. *Nantucket.*

MICHIGAN.

1. Calumet.
2. *Marquette.*
3. *Sault Ste. Marie.*
4. *Escanaba.*
5. Cheboygan.
6. *Alpena.*
7. Ivan.
8. Grayling.
9. Harbor Beach.
10. Alma.
11. Arbel.
12. Grand Haven.
13. *Port Huron.*
14. Hastings.
15. Ball Mountain.
16. Kalamazoo.
17. *Detroit.*
18. Adrian.

MINNESOTA.

1. Crookston.
2. Mount Iron.

MINNESOTA—continued.

3. *Moorhead.*
4. *Park Rapids.*
5. *Sandy Lake Dam.*
6. *Duluth.*
7. *Fergus Falls.*
8. *Moris.*
9. *Collegeville.*
10. *Bird Island.*
11. *Minneapolis.*
12. *St. Paul.*
13. *Luverne.*
14. *Rolling Green.*
15. *Grand Meadow.*

MISSISSIPPI.

1. *Batesville.*
2. *Pontotoc.*
3. *Palo Alto.*
4. *Greenville.*
5. *Louisville.*
6. *Yazoo City.*
7. *Canton.*
8. *Vicksburg.*
9. *Meridian.*
10. *Crystal Springs.*
11. *Natchez.*
12. *Hattiesburg.*
13. *Magnolia.*
14. *Biloxi.*

MISSOURI.

1. *Oregon.*
2. *Sublett.*
3. *Brunswick.*
4. *Kansas City.*
5. *Marshall.*
6. *Columbia.*
7. *Mexico.*
8. *Harrisonville.*
9. *St. Louis.*
10. *Oakfield.*
11. *Lamar.*
12. *Ironton.*
13. *Springfield.*
14. *Olden.*
15. *Poplar Bluff.*
16. *Sikeston.*

MONTANA.

1. *Kipp.*
2. *Havre.*
3. *Kalispel.*
4. *Glasgow.*
5. *Poplar.*
6. *Great Falls.*
7. *Missoula.*
8. *Glendive.*
9. *Helena.*
10. *Butte.*
11. *Miles City.*
12. *Crow Agency.*

NEBRASKA.

1. *Hay Springs.*
2. *Valentine.*
3. *Lynch.*
4. *Oakdale.*
5. *Tekamah.*
6. *Kimball.*
7. *North Platte.*
8. *Ansley.*
9. *Genoa.*
10. *David City.*
11. *Omaha.*
12. *Imperial.*
13. *Beaver City.*
14. *Hebron.*
15. *Lincoln.*
16. *Auburn.*

NEVADA.

1. *Winnemucca.*
2. *Elko.*
3. *Carson City.*
4. *Potts.*
5. *Ely.*
6. *Hawthorne.*
7. *Pioche.*

NEW HAMPSHIRE

1. *Stratford.*
2. *Bethlehem.*
3. *Plymouth.*
4. *Concord.*
5. *Durham.*
6. *Keene.*
7. *Nashua.*

NEW JERSEY.

1. *Dover.*
2. *New Brunswick.*
3. *Asbury Park.*
4. *Moorestown.*
5. *Vineland.*
6. *Atlantic City.*

NEW MEXICO.

1. *Aztec.*
2. *Santa Fe.*
3. *Fort Union.*
4. *Albert.*
5. *Fort Wingate.*
6. *Albuquerque.*
7. *Roswell.*
8. *Fort Bayard.*
9. *Mesilla Park.*

NEW YORK.

1. *Ogdensburg.*
2. *Saranac Lake.*
3. *Lowville.*
4. *Number Four.*
5. *Appleton.*
6. *Rochester.*
7. *Oswego.*

NEW YORK—continued.

8. *Rome.*
9. *Glens Falls.*
10. *Buffalo.*
11. *Avon.*
12. *Auburn.*
13. *Cooperstown.*
14. *Albany.*
15. *Jamestown.*
16. *Angelica.*
17. *Ithaca.*
18. *Honeymead Brook.*
19. *Port Jervis.*
20. *New York.*
21. *Setauket.*

NORTH CAROLINA.

1. *Mount Airy.*
2. *Roxboro.*
3. *Henderson.*
4. *Weldon.*
5. *Linville.*
6. *Lenoir.*
7. *Soapstone Mount.*
8. *Chapel Hill.*
9. *Raleigh.*
10. *Tarboro.*
11. *Waynesville.*
12. *Asheville.*
13. *Highlands.*
14. *Charlotte.*
15. *Rockingham.*
16. *Fayetteville.*
17. *Goldsboro.*
18. *Newbern.*
19. *Hatteras.*
20. *Sloan.*
21. *Lumberton.*
22. *Wilmington.*
23. *Southport.*

NORTH DAKOTA.

1. *Williston.*
2. *Willow City.*
3. *Churchs Ferry.*
4. *Milton.*
5. *Oakdale.*
6. *University.*
7. *Dickinson.*
8. *Bismarck.*
9. *Jamestown.*
10. *Ashley.*
11. *Berlin.*
12. *Wahpeton.*

OHIO.

1. *Wauseon.*
2. *Toledo.*
3. *Sandusky.*
4. *Cleveland.*
5. *Hiram.*

OHIO—continued.

6. Ottawa.
7. Marion.
8. Bangorville.
9. Canton.
10. Greenville.
11. North Lewisburg.
12. *Columbus*.
13. Cambridge.
14. New Alexandria.
15. Dayton.
16. McConnelsville.
17. Marietta.
18. Clarksville.
19. Coalton.
20. *Cincinnati*.
21. Portsmouth.

OREGON.

1. Astoria.
2. Glenora.
3. *Portland*.
4. The Dalles.
5. Lonerock.
6. Pendleton.
7. Joseph.
8. Newport.
9. Albany.
10. Prineville.
11. Dayville.
12. *Baker City*.
13. Beulah.
14. Bandon.
15. *Roseburg*.
16. Silver Lake.
17. Happy Valley.
18. Ashland.
19. Lakeview.

PENNSYLVANIA.

1. *Erie*.
2. Saegertown.
3. Emporium.
4. Le Roy.
5. South Eaton.
6. State College.
7. Selins Grove.
8. Mauch Chunk.
9. *Pittsburg*.
10. Huntingdon.
11. Lebanon.
12. Quakertown.
13. *Harrisburg*.
14. York.
15. West Chester.
16. *Philadelphia*.

RHODE ISLAND.

1. Providence.
2. *Narragansett Pier*.
3. Kingston.
4. *Block Island*.

SOUTH CAROLINA.

1. Clemson College.
2. Greenville.
3. Santuck.
4. Society Hill.
5. *Columbia*.
6. Stateburg.
7. Trenton.
8. Aiken.
9. Blackville.
10. Trial.
11. *Charleston*.
12. Beaufort.

SOUTH DAKOTA.

1. Ashcroft.
2. Bowdle.
3. Aberdeen.
4. Milbank.
5. Spearfish.
6. Cherry Creek.
7. *Pierre*.
8. Redfield.
9. Gary.
10. *Huron*.
11. Brookings.
12. *Rapid City*.
13. Hotch City.
14. Kimball.
15. Alexandria.
16. Sioux Falls.
17. Oelrichs.
18. Rosebud.
19. Greenwood.
20. Tyndall.

TENNESSEE.

1. Clarksville.
2. Byrdstown.
3. Rogersville.
4. Elizabethton.
5. Trenton.
6. Johnsonville.
7. *Nashville*.
8. Carthage.
9. Erasmus.
10. *Knoxville*.
11. Newport.
12. Hohenwald.
13. Decatur.
14. *Memphis*.
15. Boliver.
16. Savannah.
17. Tullahoma.
18. *Chattanooga*.

TEXAS.

1. *Amarillo*.
2. Mount Blanco.
3. Paris.
4. *Abilene*.

TEXAS—continued.

5. Dallas.
6. Longview.
7. *El Paso*.
8. Waco.
9. *Palestine*.
10. Menardville.
11. College Station.
12. Fredericksburg.
13. Houston.
14. Fort Clark.
15. *San Antonio*.
16. *Galveston*.
17. Beeville.
18. *Corpus Christi*.
19. Fort Brown.

UTAH.

1. Snowville.
2. Logan.
3. *Salt Lake City*.
4. Provo City.
5. Vernal.
6. Levan.
7. Fillmore.
8. Loa.
9. Moab.
10. *Modena*.
11. Hite.
12. St. George.

VERMONT.

1. Enosburg Falls.
2. Burlington.
3. St. Johnsbury.
4. *Northfield*.
5. Cornwall.
6. Woodstock.
7. Wells.
8. Jacksonville.

VIRGINIA.

1. Dale Enterprise.
2. Hot Springs.
3. Staunton.
4. Stanardsville.
5. Fredericksburg.
6. Charlottesville.
7. Warsaw.
8. *Richmond*.
9. Big Stone Gap.
10. *Wytheville*.
11. Blacksburg.
12. *Lynchburg*.
13. Spottsville.
14. Hampton.
15. *Norfolk*.

WASHINGTON.

1. *Tatoosh Island*.
2. Olga.
3. Snohomish.

WASHINGTON—continued

4. Lakeside.
5. Waterville.
6. *Spokane*.
7. *Seattle*.
8. Aberdeen.
9. Olympia.
10. *Tacoma*.
11. Ellensburg.
12. Colfax.
13. Centralia.
14. Moxee Wells.
15. Pomeroy.
16. *Walla Walla*.
17. Lyle.

WEST VIRGINIA.

1. Wellsburg.
2. Morgantown.
3. Terra Alta.
4. Burlington.
5. Martinsburg.
6. *Parkersburg*.
7. Lost Creek.

WEST VIRGINIA—continued.

8. Point Pleasant.
9. Glenville.
10. *Elkins*.
11. Powellton.
12. Marlinton.
13. Hinton.
14. Elkhorn.

WISCONSIN.

1. Washburn.
2. Grantsburg.
3. Hayward.
4. Florence.
5. Osceola.
6. Barron.
7. Medford.
8. Koepenick.
9. Eau Claire.
10. Neillsville.
11. Stevens Point.
12. Oconto.
13. *Green Bay*.
14. Hancock.

WISCONSIN—continued.

15. Fond du Lac.
16. Manitowoc.
17. *La Crosse*.
18. Viroqua.
19. Lancaster.
20. *Madison*.
21. Harvey.
22. *Milwaukee*.
23. Beloit.

WYOMING.

1. *Yellowstone*.
2. Four Bear.
3. Basin.
4. Buffalo.
5. Thayne.
6. *Lander*.
7. Alcova.
8. Lusk.
9. Fort Laramie.
10. Rawlins.
11. Evanston.
12. Laramie.
13. *Cheyenne*.

NEW ENGLAND.

By JOHN W. SMITH,
District Forecaster.

NEW ENGLAND.

There is probably no country in the world that better shows the results of glacial erosion than the United States. The acme of its effect is probably best exemplified in New England, noted equally for its peculiarities of relief and contour, the weather and the climatic conditions that obtain in its different sections.

The mountainous elevations, as is well known, are a northeastern continuation of the Appalachian chain, the latter being a distinguishing feature of the eastern portion of the country, and, to a certain extent, dominating the weather of the Atlantic coast regions. In New England there are but two prominent groups. These consist of broken ranges dotted with occasional peaks, as, for example, the Green Mountains of Vermont, with a maximum elevation of 4,389 feet at Mount Mansfield, and the White Mountains of New Hampshire. Mount Washington (6,293 feet) is the second highest mountain east of the Mississippi River, being exceeded in height only by Mount Mitchell of North Carolina. The Berkshire Hills of western Massachusetts and the Housatonic range, with their broken ridges and valleys, while not greatly elevated, are as notable as the White Mountain district.

On the immediate western boundary lies the Hudson River valley, the river running due south to New York Bay, there being a secondary depression toward the north forming Lake Champlain, with its numerous small tributaries. Between the Green Mountains and the White Mountains the principal river of this region, the Connecticut, flows southward; it rises in the northern part of New Hampshire and forms the greater part of the boundary line between New Hampshire and Vermont, crosses Massachusetts and Connecticut, and empties into Long Island Sound. The alluvial meadows along its banks constitute one of the most fertile sections of New England. Separating this watershed from that of the Merrimac there is a plateau-like elevation sloping gradually down to the sea, a peculiar feature being that to the immediate west of the Merrimac there is another incline to the north; this is shown by the fact that the Contoocook River, rising in the vicinity of Mount Monadnock, has a general course almost directly north, entering the Merrimac near Concord, N. H. In the major portion of its course the latter river flows south, but soon after entering Massachusetts it turns to the eastward, emptying into the sea north of Cape Ann. The remaining best known rivers are the Saco and the Androscoggin, both rising in the northern portion of New Hampshire, and the Kennebec and the Penobscot that have their sources in the lakes of northern Maine, the four rivers combined forming the principal drainage outlet for Maine.

Maine, eastern Massachusetts, eastern Connecticut, and Rhode Island have in general a gradual slope toward the coast, broken by isolated prominences that still remain as monuments of glacial action. The best known of these prominences are Mount Monadnock of New Hampshire, Mount Wachusett in Massachusetts, and numerous scattered eminences in Maine, of which Mount Katahdin is the best known. Some parts of the three northern States are still practically unsettled and their virgin forests and beautiful lakes are a mecca for the sportsman, the lover of nature, and the invalid.

While the topography of New England presents many diversified and peculiar features, both as regards its mountains and the courses of its rivers, they are not so marked as the vagaries of its weather and the differences in the climatic conditions of its several sections. Briefly, the climate is a combination of the continental and the marine, the latter being best shown in the southeastern portion, especially on the islands of Nantucket and Marthas Vineyard, that remain as examples of the glacial action previously mentioned.

The determining causes of the climate are necessarily its pronounced physical features, its geographical position, and its location with regard to the paths of storms. There is probably no part of the United States, distinguished for its sudden and erratic weather changes, that offers to the student of climatology so rich a field for research.

The radical changes in the weather conditions that make up the several seasons are to a large extent controlled by the areas of high and low barometric pressure that pass either (1) to the north and down the valley of the St. Lawrence, (2) directly over New England, or (3) along the coast. The low-pressure areas that take the course last named usually bring the heaviest precipitation and in winter, other conditions being favorable, are sometimes followed by intense cold waves and at times boisterous weather.

The seasons, particularly winter and summer, are well marked. The winters are long and severe, often beginning in November, with snow sometimes in October. The climax of the winter season is usually reached in February, after which there is generally a diminution in the extremes of the weather conditions, the winter practically ending with March. Snow flurries are not uncommon, and occasionally snowstorms of considerable intensity occur in April. Snow sometimes falls in May, although such occurrences are rare. The mean temperature of the winter season varies from 15° in the northern portions of New England to 33° on the islands of the southern coast. The minima for the same period range from -5° in the south to -30° and -38° in northern sections. At times the changes in temperature are striking, being so close together as to form phenomenal contrasts. The maxima, even in midwinter, rise into the sixties, followed as often by cold waves, during which the mercury falls to 30° and 40° below zero, giving a range in temperature for New England of about 100°. Conspicuous characteristics of the winters are the severe and prolonged storms, with their attending heavy precipitation, snow and rain, chiefly the former, and dangerous and at times destructive gales that sweep the entire coast with hurricane force. Snow is of common occurrence in all sections, although much heavier in the interior than along the coast. The annual average snowfall ranges from 21 to 110 inches. The average maximum fall of 90 to 100 inches covers an area extending from

northern Maine southwesterly through New Hampshire and Vermont. The greatest monthly amounts usually fall in February and the largest twenty-four-hour falls in the last decade of the month and occasionally in the early days of March. The summers as a rule are short. It sometimes happens that warm and even oppressive weather occurs near the close of April and in the early part of May, but as a general rule the summers begin rather abruptly with June. Fair weather predominates, with an average amount of sunshine. During the months of July and August short periods of very warm weather occur, during which temperatures in the nineties may be experienced with an exceedingly moist atmosphere, generally described as "muggy" weather. These periods of warm, "muggy" weather rarely last more than three or four days. They are generally due to the passage to the west and north of a well-defined but sluggish area of low barometric pressure. Cooler weather, with easterly or ocean winds, popularly known as "easterly weather," follows the warm spells, during which the contrasts in the thermal conditions are equally as striking as those of the winter months. The average summer temperature is somewhat remarkable for equable distribution over the several States, being from 64° in the northern sections to 70° in the islands of the southern coast. Eastport, Me., however, located in the extreme northeastern portion of the State and on the immediate coast, is an exception, with a summer mean temperature of 59°. The maxima of the summer season are in greater contrast, varying from 89° along the southeastern coast to 100° or slightly more in the interior parts of Maine to Connecticut. Easterly winds are a distinctive feature of the summers, mostly as sea breezes, but at times as permanent winds. Summer terminates gradually, often merging with the delightful weather conditions known as "Indian summer," that sometimes lasts for several weeks, having its ending almost with the beginning of winter.

The annual precipitation of New England does not vary greatly, the amounts for the whole territory ranging from 40 to 50 inches. It is also remarkably well distributed through the several seasons. With slight exceptions, March is the wettest month and June the driest. Thunderstorms are a recognized phenomena of the weather of New England, being most common in July and August. The annual average number is about 10, with a maximum of 25 to 30, the largest number usually occurring in the southern portion of the Connecticut Valley. Hail, sleet, and ice storms are occasional features of the climate, but are not sufficiently frequent to call for particular mention. Tornadoes of destructive force have occurred in southern portions of New England, but very rarely. The average date of the first killing frost for the entire district is September 23, and average date of the last killing frost May 12. Occasionally there are summers in which frosts sufficiently severe to kill tender vegetation occur in some sections or localities in all the summer months.

The monthly mean temperatures for all stations in New England were obtained from the daily extremes.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
MAINE.				VERMONT—continued.			
Androscoggin	Lewiston	Southwest	130	Orleans (see Enosburg Falls)	North		
Aroostook (see Orono)	Portland	Southwest	134	Rutland	West		148
Cumberland	North Bridgton	Southwest	129	Washington	Northfield	Central	145
Franklin (see Rumford Falls)		West		Windham	Jacksonville	South	149
Hancock	Bar Harbor	South coast	132	Windsor	Woodstock	West	147
Kennebec	Gardiner	Central	131	MASSACHUSETTS.			
Knox (see Gardiner)		South coast		Barnstable	Hyannis	Southeast	160
Lincoln (see Gardiner)		do.		Berkshire	Provincetown	do.	161
Oxford	Rumford Falls	West	127	Bristol	Pittsfield	West	152
Penobscot	Orono	Central	126		Fall River	South	158
Piscataquis (see Mayfield)		do.		Dukes (see Nantucket)	New Bedford	do.	159
Sagadahoc (see Gardiner)		Southwest		Essex	Lawrence	Southeast	150
Somerset	Fairfield	Central	124	Franklin (see Amherst)		North	
Waldo (see Bar Harbor)	Mayfield	do.	125	Hampden	Monson	South	156
Washington		South		Hampshire	Amherst	Central	153
York	Eastport	East coast	128	Middlesex (see Boston)		Southeast	
	Cornish	Southwest	133	Nantucket	Nantucket	Southeast	162
				Norfolk	Blue Hill	East	154
				Plymouth	Middleboro	do.	157
				Shutts	Boston	do.	155
				Worcester	Fitchburg	North	151
NEW HAMPSHIRE.				RHODE ISLAND.			
Belknap (see Plymouth)		Central		Bristol (see Fall River, Mass.)		East	
Carroll (see North Bridgton, Me.)		East		Kent (see Kingston)		Central	
Cheshire	Keene	Southwest	140	Newport	Block Island	South coast	166
Coos	Stratford	North	135	Providence	Providence	Central	163
Grafton	Bethlehem	do.	136	Kingston	Kingston	South coast	165
Hillsboro	Plymouth	do.	137	Washington	Narragansett Pier	do.	164
Merrimack	Nashua	South	141				
Rockingham (see Nashua)	Concord	do.	138				
Strafford	Durham	Southeast	139				
Sullivan (see Keene)		do.					
		Southwest					
VERMONT.				CONNECTICUT.			
Addison	Cornwall	West	146	Fairfield	Norwalk	Southwest	174
Bennington (see Jackson-ville)		Southwest		Hartford	Southington	North	168
Caledonia	St. Johnsbury	Northeast	144	Litchfield (see Waterbury)		Northwest	
Chittenden	Burlington	Northwest	143	Middlesex (see New Haven)		South coast	
Essex (see Stratford, N. H.)		Northeast		New Haven	New Haven	do.	173
Franklin	Enosburg Falls	North	142	Waterbury	Waterbury	West	171
Grand Isle (see Burlington)		Northwest		New London	New London	Southwest	172
Lamoille (see Enosburg Falls)		North		Voluntown	Voluntown	East	159
Orange (see Northfield)		East		Waterbury	Waterbury	Central	169
				Storrs	Storrs	Northeast	167
				Windham (see Storrs)		do.	

STATE SUMMARY.

Station.	Number	Temperature.						Average number days with—			
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.	
MAINE.											
Fairfield.....	1	43	53	32	97	July, 1901.....	-37	February, 1889.....	2	172	
Mayfield.....	2	42	54	32	96	July, 1894.....	-22	December, 1893.....	2	168	
Orono.....	3	43	53	33	100	July, 1901.....	-36	January, 1896.....	2	156	
Rumford Falls.....	4	43	52	33	101	July, 1898.....	-29	January, 1890.....	3	151	
Eastport.....	5	42	49	35	93	July, 1901.....	-21	December, 1884.....	1	133	
North Bridgton.....	6	44	55	34	100	do.....	-26	February, 1894.....	3	153	
Lewiston.....	7	44	54	34	100	July, 1894.....	-24	February, 1887.....	5	150	
Gardiner.....	8	45	56	35	101	July, 1901.....	-30	January, 1898.....	8	152	
Bar Harbor.....	9	44	53	35	96	July, 1895 and 1898.....	-17	January, 1896.....	1	151	
Cornish.....	10	44	52	37	97	June and July, 1901.....	-19	December, 1875 and 1883.....	3	140	
Portland.....	11	46	53	33	97	July, 1898.....	-17	December, 1872.....	3	127	
NEW HAMPSHIRE.											
Stratford.....	1	43	56	31	100	July, 1897.....	-32	February, 1896.....	10	174	
Bethlehem.....	2	42	52	32	92	do.....	-26	do.....	1	167	
Plymouth.....	3	43	54	32	102	July, 1901.....	-38	February, 1899.....	11	176	
Concord.....	4	46	57	35	100	July, 1878.....	-35	January, 1878.....	5	149	
Durham.....	5	46	56	36	98	July, 1896.....	-22	December, 1902.....	9	138	
Keene.....	6	45	56	33	98	July, 1901.....	-28	1898.....	7	193	
Nashua.....	7	47	58	36	100	do.....	-25	January, 1887.....	12	156	
VERMONT.											
Enosburg Falls.....	1	43	54	32	94	July, 1897.....	-32	1893.....	2	160	
Burlington.....	2	46	54	40	96	do.....	-21	February, 1888.....	3	137	
St. Johnsbury.....	3	42	53	32	93	June, 1901.....	-34	January, 1896.....	1	165	
Northfield.....	4	41	51	32	95	do.....	-32	February, 1889.....	2	170	
Cornwall.....	5	45	54	36	97	do.....	-24	February, 1895.....	5	136	
Woodstock.....	6	43	55	32	99	July, 1897.....	-36	February, 1896.....	8	171	
Wells.....	7	44	54	34	95	July, 1901.....	-26	do.....	3	152	
Jacksonville.....	8	42	54	30	95	do.....	-32	February, 1894.....	2	194	
MASSACHUSETTS.											
Lawrence.....	1	48	58	38	102	July, 1892.....	-25	January, 1887.....	11	137	
Fitchburg.....	2	47	56	38	100	July, 1901.....	-16	February, 1896.....	7	133	
Pittsfield.....	3	46	54	36	96	do.....	-17	do.....	3	137	
Amherst.....	4	47	58	37	100	do.....	-22	January, 1899.....	9	146	
Blue Hill.....	5	47	56	39	97	July, 1894.....	-16	February, 1896.....	3	135	
Boston.....	6	49	57	41	102	September, 1881.....	-13	January, 1882.....	8	112	
Monson.....	7	47	58	36	98	do.....	-25	January, 1899.....	4	135	
Middleboro.....	8	48	58	38	96	July, 1898.....	-23	January, 1893.....	4	142	
Fall River.....	9	49	56	42	96	June, 1888.....	-10	January, 1896.....	2	93	
New Bedford.....	10	48	56	40	94	September, 1881.....	-11	do.....	1	115	
Hyannis.....	11	50	57	44	97	June, 1895.....	-8	do.....	2	92	
Provincetown.....	12	49	57	42	104	July, 1901.....	-13	February, 1895.....	2	90	
Nantucket.....	13	49	54	44	89	June, 1895.....	-4	January, 1888.....	0	80	
RHODE ISLAND.											
Providence.....	1	50	58	42	102	July, 1898.....	-9	February, 1896.....	10	104	
Narragansett Pier.....	2	49	57	41	94	July, 1903.....	-12	do.....	1	115	
Kingston.....	3	48	58	38	97	August, 1900.....	-12	December, 1892.....	3	127	
Block Island.....	4	49	55	44	89	do.....	-4	June, 1896.....	0	80	
CONNECTICUT.											
Storrs.....	1	47	57	38	96	July, 1898.....	-13	January, 1896.....	4	133	
Southington.....	2	48	58	39	100	September, 1881.....	-19	January, 1888.....	6	129	
Cochester.....	3	48	58	38	100	June, 1888.....	-10	February, 1896.....	4	129	
Voluntown.....	4	49	60	38	102	June, 1898.....	-18	January, 1893.....	3	131	
Waterbury.....	5	48	59	39	102	July, 1901.....	-20	January, 1887.....	8	131	
New London.....	6	49	57	42	95	July, 1900.....	-10	February, 1899.....	2	110	
New Haven.....	7	50	58	41	100	September, 1881.....	-14	January, 1873.....	2	110	
Norwalk.....	8	49	60	38	100	July, 1901.....	-16	February, 1899.....	9	126	

STATE SUMMARY—Continued.

Station.	Number.	Frost.				Precipitation.					
		Average date of -		Date of -		Annual.	Spring.	Summer.	Autumn.	Winter.	
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.						
MAINE.											
Fairfield.....	1	Sept. 24	May 13	Sept. 16	June 6	<i>Inches.</i> 35.3	<i>Inches.</i> 8.4	<i>Inches.</i> 9.1	<i>Inches.</i> 8.9	<i>Inches.</i> 8.9	
Mayfield.....	2	Sept. 22	May 17	Sept. 6	May 31	52.0	12.2	10.8	11.8	11.2	
Orono.....	3	Sept. 24	May 11	Sept. 12	June 5	42.6	10.1	10.2	10.4	11.6	
Rumford Falls.....	4	Sept. 20	May 15	Sept. 6	May 26	42.1	10.8	11.5	9.7	10.1	
Eastport.....	5	Oct. 12	Apr. 28	Sept. 3	June 19	43.4	11.3	10.0	11.1	11.0	
North Bridgton.....	6	Sept. 15	May 15	Sept. 5	May 26	47.6	12.9	11.8	11.2	11.7	
Lewiston.....	7	Oct. 2	May 5	Sept. 6	May 25	46.2	11.6	10.6	11.5	12.5	
Gardiner.....	8	Oct. 1	May 6	Sept. 21	do.	43.0	11.5	9.4	10.4	11.7	
Bar Harbor.....	9	Oct. 12	May 18	Sept. 24	June 17	48.9	12.2	9.3	12.9	14.8	
Cornish.....	10	Sept. 12	May 23	Aug. 1	June 23	47.9	11.4	12.6	12.2	11.7	
Portland.....	11	Oct. 18	Apr. 14	Sept. 11	May 31	42.8	10.6	10.2	11.0	11.0	
NEW HAMPSHIRE.											
Stratford.....	1	Sept. 20	May 23	Sept. 6	June 11	35.5	7.6	11.5	9.1	7.3	
Bethlehem.....	2	Sept. 19	May 22	Aug. 22	June 30	37.7	8.6	11.8	9.8	7.2	
Plymouth.....	3	Sept. 26	May 17	Sept. 7	June 7	42.4	10.5	11.5	10.4	10.1	
Concord.....	4	Sept. 30	May 7	Sept. 6	May 30	40.4	9.5	11.0	10.0	9.9	
Durham.....	5	Oct. 3	May 8	Sept. 14	June 17	45.3	11.4	10.8	11.7	11.9	
Keene.....	6	Sept. 20	May 16	Sept. 6	May 31	40.4	9.4	11.8	10.2	9.0	
Nashua.....	7	Sept. 10	May 5	Aug. 22	do.	43.0	10.6	10.3	10.4	11.7	
VERMONT.											
Enosburg Falls.....	1	Sept. 20	May 16	Sept. 5	June 10	42.2	9.6	13.2	9.7	9.7	
Burlington.....	2	Oct. 10	Apr. 20	Sept. 6	May 27	33.3	7.2	11.5	9.2	5.4	
St. Johnsbury.....	3	Sept. 25	May 16	Sept. 15	May 26	35.6	8.2	12.0	8.5	6.9	
Northfield.....	4	Sept. 16	May 13	Aug. 27	June 7	33.1	7.3	10.1	7.6	8.1	
Cornwall.....	5	Oct. 5	May 5	Sept. 21	May 22	33.4	7.3	11.0	8.3	6.8	
Woodstock.....	6	Sept. 18	May 21	Sept. 6	June 9	37.3	9.7	10.3	8.5	8.8	
Wells.....	7	Sept. 26	May 11	Sept. 15	May 25	37.9	8.2	12.1	9.1	7.8	
Jacksonville.....	8	Sept. 18	May 19	Aug. 27	June 6	50.3	12.2	13.0	11.9	13.2	
MASSACHUSETTS.											
Lawrence.....	1	Oct. 16	Apr. 27	Sept. 24	May 11	43.1	10.9	10.3	10.8	11.1	
Fitchburg.....	2	Oct. 12	Apr. 28	Sept. 11	May 19	45.4	10.9	10.3	11.3	12.9	
Pittsfield.....	3	Oct. 4	May 4	Sept. 22	May 30	44.2	10.5	13.2	10.9	9.6	
Amherst.....	4	Oct. 8	May 7	Sept. 16	May 22	46.3	10.8	14.5	11.4	10.6	
Blue Hill.....	5	Sept. 18	May 10	Aug. 22	May 29	47.2	11.2	10.8	13.1	12.1	
Boston.....	6	Oct. 22	Apr. 20	Sept. 30	May 11	43.7	11.2	10.5	11.1	10.9	
Monson.....	7	Sept. 25	May 10	Sept. 3	June 15	47.5	11.1	12.8	11.5	12.1	
Middleboro.....	8	Sept. 30	May 12	Sept. 9	May 29	45.7	12.0	8.9	12.7	12.1	
Fall River.....	9	Oct. 10	Apr. 25	Sept. 30	May 10	49.5	13.5	9.9	12.6	13.7	
New Bedford.....	10	Oct. 21	Apr. 23	do.	May 6	47.9	13.0	10.2	12.0	12.7	
Hyannis.....	11	Oct. 18	Apr. 27	Oct. 4	May 24	43.1	12.5	8.2	11.1	11.8	
Provincetown.....	12	Oct. 30	Apr. 19	Oct. 1	May 14	40.7	10.3	8.8	11.1	10.5	
Nantucket.....	13	Nov. 5	Apr. 10	do.	Apr. 21	36.5	9.5	7.5	10.0	9.5	
RHODE ISLAND.											
Providence.....	1	Oct. 22	Apr. 15	.....	June 2	50.3	12.9	11.1	12.4	13.9
Narragansett Pier.....	2	Nov. 11	Apr. 20	Sept. 21	May 18	47.4	12.8	9.7	11.7	13.2	
Kingston.....	3	Oct. 17	Apr. 26	Sept. 24	May 26	53.2	15.5	10.1	13.0	14.6	
Block Island.....	4	Nov. 16	Apr. 12	Nov. 3	May 11	45.3	12.1	9.4	11.6	12.2	
CONNECTICUT.											
Storrs.....	1	Oct. 10	May 8	Sept. 15	May 29	47.2	12.1	12.0	11.3	11.8	
Southington.....	2	Oct. 8	May 10	Sept. 4	do.	45.2	10.8	12.1	10.5	11.8	
Colechester.....	3	Sept. 30	May 6	Sept. 25	May 14	48.6	13.1	11.3	12.0	12.2	
Voluntown.....	4	Sept. 20	May 12	Sept. 1	June 8	50.0	12.9	11.2	12.4	13.8	
Waterbury.....	5	Oct. 9	May 2	Sept. 7	May 17	49.9	12.2	11.2	11.8	12.7	
New London.....	6	Oct. 18	Apr. 15	Sept. 20	May 7	43.8	11.3	9.9	11.2	11.4	
New Haven.....	7	Oct. 17	Apr. 20	Sept. 15	May 30	47.2	11.7	12.8	11.2	11.5	
Norwalk.....	8	Oct. 10	May 1	Sept. 28	May 17	48.0	12.6	12.4	11.6	11.2	

MAINE.

Central Section: SOMERSET COUNTY. Station: FAIRFIELD.

GEORGE W. PARKER, Observer.

[Established April, 1886. Latitude, 44° 34' N. Longitude, 69° 35' W. Elevation, 90 feet.]

Fairfield is located on an island of 20 to 30 acres extent in the Kennebec River. The island is quite low and level, but the land away from the river is moderately hilly and rolling and well wooded. The station is located on the grounds of the United Box, Board and Paper Company. The thermometers are Weather Bureau instruments and exposed in a standard shelter furnished by the Bureau, located about 50 feet from the office of the superintendent of the mills, with ground exposure over sod. The rain gage, New England Meteorological Society pattern, is located on the roof of the office building, 19 feet above ground, with no higher objects near.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	22	31	57	12	—37	30	7	3.0	9	1.8	2.2	12.0	17.0
January.....	11	17	54	5	—32	23	8	3.0	10	2.4	5.9	16.0	20.0
February.....	18	30	58	6	—37	24	13	2.9	10	1.0	7.0	17.0	17.0
Winter mean.....	17	26	.....	8	.....	.....	.....	8.9	29	5.2	15.1	45.0	.....
March.....	29	39	70	19	—21	39	19	3.6	11	0.9	4.7	8.0	11.0
April.....	42	53	84	31	4	46	36	1.9	8	0.7	1.6	1.0	5.0
May.....	54	66	89	42	24	59	50	2.9	10	3.8	5.2	0.0	0.0
Spring mean.....	42	53	.....	31	.....	.....	.....	8.4	29	5.4	11.5	9.0	0.0
June.....	63	75	95	51	30	67	58	2.7	10	3.0	4.1	0.0	0.0
July.....	68	79	97	56	41	72	55	3.3	9	2.6	3.4	0.0	0.0
August.....	66	76	92	55	40	68	63	3.1	9	3.5	1.8	0.0	0.0
Summer mean.....	66	77	.....	54	.....	.....	.....	9.1	28	9.1	9.3	0.0	0.0
September.....	58	69	89	47	26	62	53	3.1	8	3.8	2.6	0.0	0.0
October.....	47	57	82	37	14	51	42	2.8	8	2.4	4.0	0.0	0.0
November.....	35	44	71	26	—6	38	29	3.0	9	2.0	4.5	3.0	9.0
Fall mean.....	47	57	.....	37	.....	.....	.....	8.9	25	8.2	11.1	3.0	.....
Annual mean.....	43	53	97	32	—37	.....	.....	35.3	111	27.9	47.0	57.0	20.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 1, 2, 10, 11, 14, 18 26; Feb. 2, 5, 6, 14, 17, 23-26; Dec. 26.	June 17; July 28, 29.	1900	Jan. 1, 4, 18; Feb. 2-4, 7, 27; Dec. 10, 11, 17, 18.	Aug. 26.
1895	Jan. 3, 5, 30, 31; Feb. 1, 6, 7, 9, 24.	Sept. 22.	1901	Jan. 2, 3, 14, 15, 19, 20, 23, 30; Feb. 1, 2, 22, 23; Mar. 7; Dec. 6, 7.	June 26-29; July 14-17.
1896	Jan. 5-7, 16, 29; Feb. 17, 18, 27; Dec. 21.	None.	1902	Jan. 1, 14, 15, 20, 21; Feb. 12; Dec. 7, 10, 13.	July 8.
1897	Jan. 14, 19, 20, 25; Feb. 15, 28; Mar. 1; Dec. 22, 23, 29.	July 8.	1903	Jan. 9-11, 14, 19, 20; Feb. 18, 21; Dec. 31.	None.
1898	Jan. 3, 4, 18, 25 28-31; Feb. 3-5; Dec. 14, 29.	July 3.			
1899	Jan. 2, 10, 20, 31; Feb. 6, 11-13, 15; Mar. 18.	July 4.			

MAINE.

Central Section: SOMERSET COUNTY. Station: MAYFIELD

VIRGIL P. HALL, Observer.

{Established June, 1885. Latitude, 45° N. Longitude, 70° W. Elevation 1,000 feet.

This station is near the watershed between the Kennebec River and the Penobscot River, with an elevation of 900 to 1,000 feet. It has a southerly and easterly exposure and is protected on the north and west by high hills.

Observations began June 1, 1885, in connection with the New England Meteorological Society. For some years a common thermometer was used, exposed in a perforated box on the north side of a building. The rain gage was homemade, of galvanized iron, 8 inches in diameter and 14 inches high. About 1890 Weather Bureau instruments were received and remain in use. Except for the months of December, January, February, and March the records are very nearly complete, the break in the observations being due to absence of the observer. Some two years ago a Government instrument shelter was received and placed in use.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more	Total amount for the driest year.	Snow.		
											Total amount for the wettest year.	Average depth	Greatest depth in 24 hours
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	20	28	54	12	-19	24	16	3.8	9	3.0	4.1	17.0	12.0
January.....	16	25	44	6	-22	17	13	3.5	7	2.5	3.2	21.0	17.0
February.....	19	29	59	9	-18	24	12	3.9	6	4.0	3.6	23.0	15.0
Winter mean.....	18	27		9				11.2	22	9.5	10.9	61.0	
March.....	29	39	62	19	-10	36	22	5.6	11	4.9	9.5	17.0	18.0
April.....	41	51	83	31	5	44	33	2.8	8	1.0	4.1	7.0	16.0
May.....	52	63	90	41	21	56	48	3.8	11	3.0	3.4	T.	T.
Spring mean.....	41	51		30				12.2	30	8.9	17.0	24.0	
June.....	61	72	94	50	34	65	57	4.0	12	2.0	7.4	0.0	0.0
July.....	66	76	96	57	41	68	64	4.3	11	4.8	3.0	0.0	0.0
August.....	64	74	92	54	39	66	58	4.5	11	1.1	6.4	0.0	0.0
Summer mean.....	64	74		54				16.8	34	7.9	16.8	0.0	
September.....	56	66	90	45	27	58	51	3.7	9	3.3	4.3	T.	T.
October.....	45	54	81	36	14	49	37	3.9	10	1.7	5.8	1.0	7.0
November.....	32	39	66	24	-6	35	27	4.2	9	2.2	1.7	10.0	24.0
Fall mean.....	44	53		35				11.8	28	7.2	11.8	11.0	
Annual mean.....	42	51	96	32	-22			52.0	114	33.5	56.5	96.0	24.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894		July 19, 20, 28, 29.	1900	Jan. 4, 24; Feb. 2, 3, 27, 28; Feb. 10-12; Dec. 10, 11.	Aug. 26; Sept. 3.
1895		June 20; May 10.			
1896	Jan. 5-7, 30	Aug. 11, 12.			
1897		July 5-6; Sept. 10.	1901	Jan. 3, 19, 20; Mar. 7.	June 27; July 15-17
1898	Dec. 12, 14, 28, 29.	July 3.	1902	Dec. 9, 10.	None.
1899	Jan. 2, 10, 11, 27, 28, 30, 31; Feb. 10-12.	July 4.	1903	Jan. 10, 10; Feb. 18; Dec. 15, 27, 29.	None.

MAINE.

Central Section: PENOBSCOT COUNTY. Station: ORONO.

Prof. CHAS. D. WOODS, Observer.

[Established 1869. Latitude, 44° 54'. Longitude, 68° 40' W. Elevation, 150 feet.]

The station is located at the Maine Agricultural Experiment Station. The ground at the station and in its immediate vicinity is level, while the general character of the surrounding country is rolling, with moderate hills. The station was established in 1869 by Dr. M. C. Fernald, of the University of Maine, and continued until July, 1893, when it was transferred to the experiment station. At the time of the transfer the instruments were removed to the experiment station building and to a shelter constructed for the purpose, after the plans of the Weather Bureau shelter, only a few rods from the spot where they were originally installed by Doctor Fernald. The station is equipped with standard instruments and shelter which have ground exposures, with excellent locations.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1886, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 22	° F. 30	° F. 61	° F. 13	° F. -36	° F. 31	° F. 14	In. 3.8	9	In. 1.8	In. 2.0	In. 15.6	In. 12.0	W.
January.....	16	27	52	6	-32	25	9	4.6	10	3.0	8.1	22.3	10.0	W.
February.....	18	29	52	8	-30	25	14	3.5	8	1.7	6.8	21.8	12.0	W.
Winter mean.....	19	29		9				11.9	27	6.5	16.9	59.7		W.
March.....	30	39	64	20	-13	38	25	4.6	10	1.2	5.5	12.1	12.0	W.
April.....	42	52	84	32	9	45	37	2.7	9	1.2	2.0	2.9	5.0	W.
May.....	54	65	80	42	23	58	49	2.8	8	3.8	8.2	0.0	T.	NW.
Spring mean.....	42	52		31				10.1	27	6.2	15.7	15.0		W.
June.....	62	72	93	51	32	67	57	3.7	11	2.9	3.8	0.0	0.0	SW.
July.....	67	78	100	56	34	72	62	3.1	9	2.4	2.5	0.0	0.0	W.
August.....	65	76	95	54	36	68	61	3.4	8	2.0	1.6	0.0	0.0	W.
Summer mean.....	65	75		54				10.2	28	7.3	7.9	0.0		W.
September.....	58	69	93	46	23	61	52	3.5	7	3.4	2.9	0.0	0.0	W.
October.....	46	57	86	36	13	51	42	3.1	9	4.3	5.7	0.2	1.1	W.
November.....	35	43	72	27	-8	39	29	3.8	9	1.2	4.6	7.2	12.0	W.
Fall mean.....	46	56		36				10.4	25	8.9	13.2	7.4		W.
Annual mean.....	43	53	100	33	-36			42.6	107	28.9	53.7	82.1	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	No date for January, February, and December.	No data for July; Sept. 7.	1899	Jan. 1, 10; Feb. 5, 6, 8, 15.	July 4; Aug. 19-21.
1895	No data for January and February.	No data for June; Sept. 22, 23.	1900	Jan. 1, 3, 18; Dec. 11, 12, 15, 18.	Aug. 11, 26, 27.
1896	Jan. 6, 8, 16, 17, 21, 22.	None.	1901	Jan. 2, 20, 23, 30; Feb. 1, 2, 22, 23; Mar. 7; Dec. 6.	June 26, 27, 29, 30; July 14-16.
1897	Jan. 19, 20, 25; Feb. 1, 5, 28; Mar. 1; Dec. 29.	July 7-9; Sept. 10.	1902	Jan. 15, 20, 21; Feb. 12, 16; Dec. 7, 9, 10, 13.	None.
1898	Jan. 3, 4, 18, 28-31; Feb. 2-4; Dec. 14, 29.	July 3.	1903	Jan. 9-11, 19, 20; Feb. 18, 20; Dec. 29.	None.

MAINE.

Western Section: OXFORD COUNTY. Station: RUMFORD FALLS.

CHARLES A. MIXER, Observer.

[Established 1893. Latitude, 44° 33'. Longitude, 70° 32'. Elevation, 505 feet.]

This station was established in 1892 as an individual and private interest in connection with the beginning of industrial and water power developments on the Androscoggin River. It began as only a river gaging station; the weather observations and records were started the next year. It became a voluntary station of the Bureau in July, 1899, by adopting the Bureau forms of record and report, and later the back records from January, 1894, were furnished to the Bureau. Rumford Falls is in a loop of the Androscoggin River as it flows easterly after reentering the State from New Hampshire, and where, after flowing north a few miles, it suddenly turns south then again east. The place is in an irregular valley, and apparently is entirely surrounded by high hills that vary from one-half mile away with 300 feet greater elevation to 2 or 3 miles away with 1,000 feet greater elevation.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	21	29	54	13	-19	25	17	3.2	8	2.0	1.2	15.0	12.0
January.....	16	25	50	7	-29	19	10	3.2	8	2.4	5.8	21.3	16.0
February.....	17	27	52	8	-23	22	11	3.7	7	4.3	8.0	23.7	18.0
Winter mean.....	18	27		9				10.1	23	8.7	15.0	60.0	
March.....	29	38	62	20	-14	37	22	4.1	9	5.9	5.8	15.7	19.0
April.....	42	51	76	32	12	44	39	3.0	7	1.5	1.2	2.4	11.0
May.....	54	64	90	43	24	57	51	3.7	8	1.2	4.6	T.	0.0
Spring mean.....	42	51		32				10.8	24	8.6	11.6	18.1	
June.....	63	73	95	52	34	67	58	3.8	10	2.6	3.4	0.0	0.0
July.....	68	78	101	58	42	70	64	4.5	9	4.7	4.4	0.0	0.0
August.....	65	75	93	55	41	68	61	3.2	9	0.6	2.4	0.0	0.0
Summer mean.....	65	75		55				11.5	28	7.9	10.2	0.0	
September.....	58	69	94	48	29	60	55	3.0	8	3.0	2.3	T.	T.
October.....	46	55	80	37	18	49	40	3.0	9	2.0	3.9	T.	T.
November.....	34	40	70	27	2	37	28	3.7	8	1.9	7.2	9.6	9.0
Fall mean.....	46	55		37				9.7	25	6.9	13.4	9.6	
Annual mean.....	43	52	101	33	-29			42.1	100	32.1	50.2	87.7	19.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°	Maximum 90° or above.
1894	Jan. 10, 13, 29; Feb. 5, 6, 13, 14, 23-26.	July 20, 28.	1900	Jan. 17, 18; Feb. 2-4, 26-28; Mar. 13; Dec. 11.	July 7, 17; Aug. 11, 26; Sept. 3.
1895	Jan. 1, 30; Feb. 6.	Aug. 11; Sept. 22, 23.			
1896	Jan. 5, 6; Feb. 17, 18.	May 10; June 21; July 2, 10, 12, 21; Aug. 9, 11, 12; Sept. 11.	1901	Jan. 19, 20, 23; Feb. 22, 23; Mar. 7; Dec. 6, 7, 13.	June 26-29; July 15, 16, 18.
1897	None.	July 5-9; Sept. 10.	1902	Feb. 5, 12; Dec. 8-10.	None.
1898	Jan. 4, 17, 18, 28, 29-31; Feb. 2-5; Dec. 14.	July 3, 30; Aug. 24.	1903	Jan. 10, 13, 19, 20; Feb. 18, 20, 21; Dec. 15, 29.	May 18; July 9; Sept. 15.
1899	Jan. 2, 10, 28-31; Feb. 1, 2, 5, 10, 11, 15.	July 3-5; Aug. 19, 20.			

MAINE.

Eastern Coast: WASHINGTON COUNTY. Station: EASTPORT.

D. C. MURPHY, Observer.

[Established by Signal Service March 20, 1873. Latitude, 44° 54' N. Longitude, 66° 59' W. Elevation, 32 feet.]

The station was in the old custom-house (about present location) from March 20, 1873, to October 14, 1886, when the building was destroyed by fire. The elevation of the barometer was 61 feet. Thermometers 33 feet above ground, on the north side of office window. Elevation of rain gage 58 feet, on the roof of building. Office in Grady Building (across street from present location) from January 1, 1887, to October 14, 1893. The elevation of barometer was 53 feet. The shelter was on roof of building. Elevation of thermometers, 51 feet; rain gage, 43 feet. The office has been in its present location since October 14, 1893. The elevation of the barometer is 75.7 feet. The thermometers are exposed in the regulation shelter on the roof of the tower at an elevation of 69 feet above ground. The rain gage is 4 feet east of shelter at an elevation of 62 feet above the ground.

This station is on Moose Island and is on the west side of Passamaquoddy Bay, a small body of water that flows into the Bay of Fundy. The island is surrounded by salt water and it is connected with the mainland by a toll bridge, 4 miles west of station. The ground to the westward of station is hilly. Some of the hills a half mile to the west of station are probably from 150 to 200 feet higher than the station. The summer temperature is about 10° lower than over the mainland, due to the prevailing south winds which bring the cool moist air from the Bay of Fundy. These conditions also account for the high humidity. In winter the temperature is about 10° warmer than inland, due to the surrounding water.

Tabulated data are for the following periods of observation: Wind-direction data for eighteen years; sunshine, ten years; humidity, fifteen years. Remainder of data are for the full period of observation, thirty-one years, March 20, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Grs.	P. ct.	Grs.			
December.....	26	34	54	18	-21	33	18	3.6	14	2.2	8.6	13.9	12.3	76	1.23	74	1.30	124	45	NW.
January.....	20	28	54	13	-20	28	13	3.8	15	2.0	4.4	15.9	7.8	75	0.89	73	0.99	138	48	NW.
February.....	22	29	50	15	-20	28	17	3.6	14	1.3	9.4	18.6	12.2	74	0.91	74	1.10	145	50	NW.
Winter mean.....	23	30		15				11.0	43	5.5	22.4	48.4		75	1.01	74	1.13	136	48	NW.
March.....	29	35	54	23	-8	36	23	4.5	15	1.2	3.7	13.5	9.2	75	1.27	75	1.45	173	47	N. W.
April.....	39	45	71	33	2	42	34	3.0	12	2.1	6.8	8.1	9.8	74	1.89	74	2.03	212	52	S.
May.....	48	55	85	40	29	49	45	3.8	12	1.7	6.8	0.0	1.0	79	2.80	80	2.83	222	48	SW.
Spring mean.....	39	45		32				11.3	39	5.0	17.3	21.6		76	1.99	76	2.10	202	49	SW.
June.....	55	63	88	47	30	58	53	3.4	12	3.4	2.2	0.0	0.0	82	3.84	84	3.94	229	49	S.
July.....	60	70	93	52	45	63	58	3.5	11	1.2	8.5	0.0	0.0	83	4.61	83	4.61	257	54	S.
August.....	61	68	90	53	45	62	58	3.1	12	1.3	4.4	0.0	0.0	84	4.67	84	4.83	238	54	SW.
Summer mean.....	59	67		51				10.0	35	5.9	15.1	0.0		83	4.37	84	4.46	241	52	S.
September.....	56	65	89	49	35	58	53	3.0	10	1.5	1.9	0.0	0.0	82	3.98	83	4.02	208	55	SW.
October.....	47	55	80	41	24	50	43	4.0	12	2.4	1.9	0.0	0.7	79	2.80	79	2.90	168	49	SW.
November.....	37	44	64	31	-13	40	29	4.1	13	2.6	6.0	7.4	11.0	77	1.89	77	2.04	106	37	W.
Fall mean.....	47	55		40				11.1	35	6.5	9.8	7.4		79	2.89	80	2.99	161	47	SW.
Annual mean.....	42	49	93	35	-21			43.4	152	22.9	64.6	77.4	12.3	78	2.56	78	2.67	185	49	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 80° or above.	Year.	Minimum below -10°.	Maximum 80° or above.
1894	Feb. 24, 25.....	July 29; Aug. 23, 24.	1900	Feb. 27.....	May 30; June 21, 25; Aug. 11, 27; Sept. 4.
1895	Feb. 6.....	May 10; June 1, 2, 17, 18; Aug. 17.	1901	Jan. 19, 20.....	June 27, 30; July 1, 3, 13-15, 22; Aug. 16, 17; Sept. 5.
1896	Jan. 6; Feb. 17.....	May 10; June 19; July 1, 9, 12, 26.	1902	Dec. 9.....	May 23; July 9, 29.
1897	Jan. 19, 20.....	July 18; Sept. 6, 10.	1903	Jan. 19.....	July 2, 12; Sept. 11, 14.
1898	None.....	July 3, 4; Aug. 9, 31; Sept. 6.			
1899	Jan. 2, 10.....	May 31; July 11; Aug. 1.			

MAINE.

Southwestern Section: CUMBERLAND COUNTY. Station: NORTH BRIDGTON.

G. E. CHADBURN, Observer.

[Established by Weather Bureau, 1894. Latitude, 44° 06' N. Longitude, 70° 43' W. Elevation, 450 feet.]

This station is located at the extreme north part of Cumberland County, 50 miles from tide water, in an open country surrounded by low ranges of hills from 3 to 8 miles distant.

The instrumental equipment consists of maximum and minimum thermometers, the property of the Weather Bureau; rain gage, hygrometer, mercurial and aneroid barometers and instrument shelter of standard pattern, the last-named property of the observer. The thermometers are 8 feet 8 inches above ground, and the rain gage is located 20 feet west of the instrument shelter in an open space, the top being 18 inches above the ground. The wind direction is shown by a 4-foot vane, adjusted to the true meridian, and exposed on the cupola of the barn.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	23	32	55	14	-20	28	19	3.7	8	2.2	4.8	17.0	12.0	NW.
January.....	18	28	53	8	-21	21	17	3.7	7	3.4	4.6	20.0	12.0	NW.
February.....	20	30	65	10	-26	24	15	4.3	7	4.0	3.2	24.0	15.0	N.
Winter mean.....	20	30		11				11.7	22	9.6	12.6	61.0		NW.
March.....	30	40	80	21	-9	39	24	5.3	9	6.6	4.7	22.0	16.0	NE.
April.....	44	54	86	33	12	44	42	3.6	7	1.8	2.9	4.0	8.0	NW.
May.....	54	66	92	43	25	58	41	4.0	9	0.8	5.5	T.	T.	SE.
Spring mean.....	43	53		32				12.9	25	9.2	13.1	26.0		(?)
June.....	64	75	98	52	38	67	60	3.8	11	2.4	6.0	0.0	0.0	SW.
July.....	69	80	100	58	42	71	66	4.7	10	5.3	13.2	0.0	0.0	SW.
August.....	67	78	97	56	43	70	62	3.3	10	1.9	3.4	0.0	0.0	SW.
Summer mean.....	67	78		55				11.8	31	9.6	22.6	0.0		SW.
September.....	60	72	96	49	30	62	58	3.6	7	3.9	2.7	0.0	0.0	SW.
October.....	47	58	84	36	22	54	42	3.6	8	1.6	1.1	T.	T.	SW.
November.....	37	45	74	29	3	39	32	4.0	8	2.5	5.8	7.0	16.0	NW.
Fall mean.....	48	58		38				11.2	23	8.0	9.6	7.0		SW.
Annual mean.....	44	55	100	34	-26			47.6	101	36.4	57.9	94.0	16.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 14, 17, 23-25.....	July 2, 19, 20, 28; June 17.	1900	Jan. 4, 10; Feb. 2, 27, 28.	July 7, 16-18, 23, 24; Aug. 9, 11, 25-28; Sept. 2, 3.
1895	Feb. 6, 7, 9.....	June 20; July 21; Sept. 21-23.			
1896	Jan. 5-7; Feb. 17, 18, 26, 27; Dec. 28.	May 10; July 2, 11, 12; Aug. 4, 10-12.	1901	Feb. 22.....	June 26-30; July 14-16; Sept. 5, 6.
1897	Jan. 19, 20, 25.....	July 6-9; Sept. 10.	1902	Fe. 12; Dec. 9-11....	July 8, 9, 14, 28.
1898	Jan. 4, 28, 29, 31; Feb. 3, 4; Dec. 14, 28.	July 3; Aug. 24; Sept. 3.	1903	Jan. 10, 14, 19-21; Feb. 18, 20, 21; Dec. 29.	May 18; July 9; Sept. 14, 15.
1899	Jan. 2, 28; Feb. 11, 12, 15.	July 2-7; Aug. 18-20, 30, 31.			

MAINE.

Southwestern Section: ANDROSCOGGIN COUNTY. Station: LEWISTON.

UNION WATER POWER COMPANY, Observer.

[Established 1875. Latitude, 44° N. Longitude, 70° 20' W. Elevation, 210 feet.]

This station is in the city of Lewiston in an open lot near the guard gates of the Union Water Power Company, where the water from the Androscoggin River is led into the main canal.

The thermometers are exposed in a shelter provided by the Weather Bureau. The shelter is about 50 feet from the nearest building, and is exposed to all winds except those from an easterly direction; the easterly winds are cut off to a considerable extent by a high building.

The precipitation records were started in January, 1875. The temperature records were started in May, 1885. The thermometers are the property of the Union Water Power Company, and were obtained from a very reliable maker. Readings of temperature are taken every hour throughout the twenty-four.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	23	32	56	15	-21	39	0	4.2	12	2.0	10.8	16.4	12.0	NW.
January.....	18	28	50	8	-24	32	1	4.1	12	3.2	4.5	22.4	30.0	NW.
February.....	20	30	59	9	-24	33	2	4.2	11	3.1	2.2	22.0	18.0	NW.
Winter mean.....	20	30	.....	11	.....	.....	.....	12.5	35	8.3	17.5	60.8	.....	NW.
March.....	30	40	82	21	-4	49	17	4.9	13	6.0	3.8	17.1	12.0	NW.
April.....	42	48	86	32	10	57	27	3.2	11	1.5	5.8	5.3	9.0	NW.
May.....	54	65	92	44	26	70	40	3.5	14	1.1	1.4	0.1	2.0	SW.
Spring mean.....	42	51	.....	32	.....	.....	.....	11.6	38	8.6	11.0	22.5	.....	NW.
June.....	64	74	98	54	38	80	51	3.6	13	2.0	6.3	0.0	0.0	NW.
July.....	69	80	100	59	46	84	57	3.6	13	4.4	2.2	0.0	0.0	NW.
August.....	66	77	98	57	41	80	53	3.4	11	1.2	3.7	0.0	0.0	NW.
Summer mean.....	66	77	.....	57	.....	.....	.....	10.6	37	7.6	12.2	0.0	.....	NW.
September.....	59	70	96	49	31	75	45	3.4	10	3.6	4.4	0.0	0.0	SW.
October.....	47	57	87	38	18	63	33	3.9	12	2.0	8.1	0.3	0.6	NW.
November.....	36	43	75	28	2	47	24	4.2	12	2.6	5.5	6.1	8.0	NW.
Fall mean.....	47	57	.....	38	.....	.....	.....	11.5	34	8.2	18.0	6.4	.....	NW.
Annual mean.....	44	54	100	34	-24	.....	.....	46.2	144	32.7	58.7	89.7	30.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year	Minimum below -10°.	Maximum 90° or above.	Year	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 10; Feb. 6, 13, 14, 22-25.	June 17, 18, 22, 26; July 2, 13, 19, 20, 23, 28-30; Aug. 25.	1899	Jan. 1, 2, 28; Feb. 12..	June 5, 6, 13, 14, 24; July 2-6, 27; Aug. 17-21.
1895	Jan. 29-31; Feb. 1, 5-9.	May 7, 10, 11; June 10-12, 18-20; July 8, 21; Aug. 11; Sept. 4, 21-23.	1900	Jan. 4.....	June 1, 21, 27, 28; July 8, 17, 23, 24; Aug. 11, 25-27; Sept. 2, 3.
1896	Jan. 5, 6; Feb. 17, 18..	July 2, 10, 12, 22; Aug. 8-12; Sept. 12.	1901	Jan. 19, 20, 30; Feb. 2, 22.	June 25-30; July 2, 14-16; Sept. 7.
1897	Mar. 1.....	June 24; July 5-9, 17, 23; Sept. 9, 10.	1902	Dec. 8, 9, 12, 13.....	July 8, 14; Sept. 1.
1898	Jan. 17, 18, 28, 29-31; Feb. 3, 4.	June 25; July 3, 8, 30; Sept. 7.	1903	Jan. 9-11, 14, 15, 19, 20; Feb. 18, 20, 21.	May 18; July 2, 9; Sept. 14.

MAINE.

Central Section: KENNEBEC COUNTY. Station: GARDINER.

GUSTAVUS MOORE, Observer.

[Established November, 1892. Latitude, 44° 12' N. Longitude, 69° 47' W. Elevation, 163 feet.]

The station is located in the extreme western part of the city, but the surroundings are quite open, there being no trees or buildings near, except the observer's house. The station is in the valley of the Cobbosseecontee River and about 250 feet south of the river. The elevation of the hills, north and south, is from 75 to 150 feet. The shelter is nearly opposite the center of the observer's house and west 42 feet. The standard maximum and minimum thermometers are the property of the observer and are exposed in a shelter furnished by the United States Weather Bureau at an elevation of 44 feet above the ground. The rain gage is between the house and the shelter, 8 feet from the shelter; the top of the gage is 33 inches above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, DECEMBER 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	23	32	57	14	-20	37	7	4.3	10	2.7	2.4	12.3	10.0
January.....	18	29	54	8	-30	31	4	3.8	7	3.4	7.2	16.6	12.0
February.....	21	31	53	10	-26	35	3	3.6	8	3.1	9.0	18.1	15.0
Winter mean.....	21	31	.....	11	.....	.....	.....	11.7	25	9.2	18.6	47.0	.....
March.....	32	41	78	23	-15	49	17	5.3	10	5.6	7.2	11.9	8.0
April.....	45	56	85	34	13	59	32	3.0	9	1.2	2.5	3.4	8.0
May.....	56	68	93	44	26	71	39	3.2	10	1.9	5.4	0.0	0
Spring mean.....	44	55	.....	34	.....	.....	.....	11.5	29	8.7	15.1	15.3	.....
June.....	64	76	96	53	37	80	51	2.8	10	2.4	1.3	0.0	0.0
July.....	70	82	101	59	46	83	56	3.3	10	5.5	1.9	0.0	0.0
August.....	68	78	100	57	43	81	52	3.3	10	1.1	2.8	0.0	0.0
Summer mean.....	67	79	.....	56	.....	.....	.....	9.4	30	9.0	6.0	0.0	.....
September.....	60	71	95	49	32	75	48	3.2	8	3.9	2.4	0.0	0.0
October.....	49	58	83	40	19	61	34	3.5	8	1.8	4.4	0.0	0.0
November.....	37	46	72	28	3	55	23	3.7	8	2.4	5.3	5.5	10.0
Fall mean.....	49	58	.....	39	.....	.....	.....	10.4	24	8.1	12.1	5.5	.....
Annual mean.....	45	56	101	35	-30	.....	.....	43.0	108	35.0	51.8	67.8	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 2, 9, 10, 18; Feb. 6, 14, 17, 22, 24, 25.	June 17; July 1, 2, 19, 20, 28-30.	1899	Jan. 2; Feb. 5, 12,	June 5, 6, 14; July 2-5; Aug. 19-21.
1895	Jan. 30, 31; Feb. 1, 6, 7, 9, 10.	May 10, 11; June 2, 10-12, 18-20; July 8, 21.	1900	Jan. 3, 4, 18; Feb. 27.,	June 1, 27, 28; July 8, 9, 17, 18, 23, 24; Aug. 9, 11.
1896	Jan. 6; Feb. 17, 18; Mar. 14.	June 20; July 2, 9, 10, 12; Aug. 8-12.	1901	Jan. 20, 30; Feb. 2, 22; Dec. 6.	June 14, 25-30; July 2, 14-16, 21, 25-27.
1897	Jan. 19, 20, 25,	July 7-9, 16, 17.	1902	Dec. 9, 10, 12, 13,	July 8, 9.
1898	Jan. 18, 28-31; Feb. 3, 4; Dec. 14.	June 26; July 3, 4, 29, 30.	1903	Jan. 9-11, 14, 15, 19, 20; Feb. 18-21.	May 18; July 2, 9; Sept. 14, 15.

MAINE.

South Coast: HANCOCK COUNTY. Station: BAR HARBOR.

[Established, 1885. Latitude, 44° 22' W. Longitude, 68° 10' W. Elevation, 30 feet.]

WILLIAM MILLER, Observer.

The town of Bar Harbor is located on the northeast side of Mount Desert Island, on the shore of Frenchmans Bay, the village extending to the shore on the east and north, while to the south and west the land rises to an elevation of 1,060 feet on Newport Mountain and 1,527 feet on Green Mountain, which is distant about 2 miles from the small area of level ground on which the town is located. The station is located on the grounds of the Mount Desert Nurseries, about 1 mile south of the center of the village and within 300 feet of the shore of Frenchmans Bay. The thermometers and rain gage are of standard pattern; the thermometers are exposed in a standard Weather Bureau shelter, located on the grounds of William Miller, manager of the nursery; the rain gage is exposed on the roof of a low shed. In the vicinity of the station the ground is moderately level, but within three-fourths of a mile to the south and west rises to above 1,000 feet in the principal mountains of the island.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 26	° F. 35	° F. 56	° F. 18	° F. -15	° F. 34	° F. 18	In. 4.8	10	3.3	2.4	11.7	8.0	NW.
January.....	21	30	56	12	-17	26	15	5.2	10	9.3	11.2	20.4	18.0	NW.
February.....	22	31	57	14	-14	28	18	4.5	10	5.9	6.2	18.4	28.0	NW.
Winter mean.....	23	32		15				14.5	30	18.5	19.8	50.5		NW.
March.....	32	40	67	24	-9	38	29	5.9	11	3.3	8.6	13.5	14.0	SW.
April.....	42	51	76	32	13	44	38	2.9	8	1.1	3.2	0.4	12.0	SW.
May.....	52	62	89	42	27	55	48	3.4	9	3.9	6.1	0.0	T.	SE.
Spring mean.....	42	51		33				12.2	28	8.3	17.9	13.9		SW.
June.....	60	70	94	50	35	63	56	2.9	9	1.8	3.5	0.0	0.0	SW.
July.....	66	76	96	55	40	69	64	3.1	8	1.5	1.6	0.0	0.0	SW.
August.....	64	74	94	54	40	67	61	3.3	7	1.4	1.9	0.0	0.0	SW.
Summer mean.....	63	73		53				9.3	24	4.7	7.0	0.0		SW.
September.....	59	69	96	49	28	62	55	3.1	7	2.6	3.2	0.0	0.0	SW.
October.....	48	57	83	39	21	51	44	4.6	9	2.6	6.8	0.1	1.0	SW.
November.....	38	46	68	31	6	42	34	5.2	9	5.7	5.5	4.5	9.0	NE.
Fall mean.....	48	57		40				12.9	25	10.9	15.5	4.6		SW.
Annual mean.....	44	53	96	35	-17			48.9	107	42.4	60.2	69.0	28.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 24, 25; no data for December.	July 20, 28, 29.	1898	Jan. 29, 31.....	July 3, 4.
1895	No data for January and February.	June 18; Sept. 22, 23.	1899	Jan. 22.....	None.
1896	Jan. 6; Feb. 17, 18....	May 10; Aug. 10, 11.	1900	None.....	None.
1897	Jan. 19, 20.....	July 9; Sept. 10.	1901	Jan. 19, 20.....	June 27; July 15, 16.
			1902	Dec. 9, 10.....	None.
			1903	Jan. 19.....	Sept. 14.

MAINE.

Southwestern Section: YORK COUNTY. Station: CORNISH.

SILAS WEST, Observer.

[Established, January, 1873. Latitude 43° 47' N. Longitude 70° 42' W. Elevation, 784 feet.]

The station is 2 miles west of Cornish village, and on the southwest slope of a hill whose summit, one-fourth mile distant, is 200 feet above the level of the house. One mile northwest is the valley of the Ossipee River, and to the south, one-half mile, are hills, reaching an elevation of 100 feet above the house. The maximum and minimum thermometers are exposed in a Weather Bureau shelter, fastened over a window on the north corner of the house, 6½ feet above ground. The rain gage is located on the ground 50 feet east of the house, and 20 feet distant from an apple tree. All instruments and equipment were furnished by the Weather Bureau.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolute maxi- mum.	Mean of the mini- ma.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	24	30	60	17	-19	33	15	3.8	10	2.9	7.1	16.8	11.0
January.....	19	25	57	12	-18	29	11	3.8	10	3.4	4.2	21.8	20.0
February.....	21	29	59	13	-13	29	13	4.1	9	3.1	2.6	24.3	18.0
Winter mean.....	21	28		14				11.7	29	9.4	13.9	62.9	
March.....	29	37	75	22	-10	39	21	4.5	10	1.8	8.1	19.3	13.0
April.....	42	50	83	35	8	46	34	3.3	9	2.9	6.6	7.8	15.0
May.....	54	61	91	48	25	68	49	3.6	10	1.4	3.1	0.2	3.5
Spring mean.....	42	49		35				11.4	29	6.1	17.8	27.3	
June.....	64	74	97	58	40	68	50	3.8	10	1.5	4.9	0.0	0.0
July.....	68	78	97	63	46	73	65	4.4	10	2.4	3.2	0.0	0.0
August.....	67	79	94	60	43	74	61	4.4	10	3.1	8.4	0.0	0.0
Summer mean.....	66	77		60				12.6	30	7.0	16.5	0.0	
September.....	58	68	92	52	31	63	52	3.7	8	3.4	6.7	0.0	0.0
October.....	47	55	84	40	19	59	41	4.2	10	4.5	6.8	0.2	4.0
November.....	34	41	70	28	-11	40	25	4.3	9	3.1	1.7	8.2	14.0
Fall mean.....	46	55		40				12.2	27	11.0	15.2	8.4	
Annual mean.....	44	52	97	37	-19			47.9	115	33.5	63.4	98.6	20.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894 TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 16, 17; July 13, 19, 20, 28.	1900	Feb. 27.....	June 28; July 7, 16, 23, 24; Aug. 11, 26; Sept. 3.
1895	Feb. 6, 7.....	June 10, 11; July 8, 21; Sept. 22, 23.	1901	Jan. 19, 20.....	June 26-29; July 2, 15, 16; Sept. 5.
1896	Jan. 6; Feb. 17, 18.....	July 2; Aug. 11, 12.	1902	Dec. 8, 9.....	Sept. 2.
1897	Jan. 19.....	July 5-9; Sept. 10.	1903	Jan. 19, 20.....	May 18; July 9; Sept. 18.
1898	Jan. 4, 29; Dec. 14.....	July 3, 9, 30; Aug. 4.			
1899	Jan. 2.....	July 4-6, Aug. 19, 20.			

MAINE.

Eastern Slope: CUMBERLAND COUNTY. Station: PORTLAND.

[Established by Signal Service in January, 1871. Latitude, 43° 39' N. Longitude, 70° 15' W. Elevation 47 feet.]

E. P. JONES, Observer.

This station is near the center of the city of Portland, which is situated on a peninsula; the highest point of land in the city is 286 feet above sea level. Northwest of the city the land is hilly, many of the hills being between 200 and 300 feet high. This hilly condition continues for a distance of 7 miles north and 12 miles west and northwest, and may be said to continue quite up to the White Mountains in New Hampshire. These mountains, although about 60 miles distant, are visible from Portland on a clear day. The nearest part of the Precumpscot River valley is about 4½ miles northwest of Portland. Thunder storms often follow down this valley to where the river empties into Casco Bay, without rain occurring in the city.

The instruments are exposed on the roof of the office building. Their present height above ground is as follows: Rain gage, 75 feet; Anemometer, 117 feet; Thermometers, 82 feet.

The rainfall is measured in Lincoln Park, which has an unobstructed area of about 2 acres, situated near the center of the city.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maxi- ma.	Absolute maxi- mum.	Mean of the mini- ma.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth.	Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P.ct.	Gr.s.	P.ct.	Gr.s.	Hr.	P.ct.	
December.....	27	33	60	20	-17	37	17	3.6	11	2.6	4.7	12.0	12.4	78	1.21	72	1.28	146	53	NW.
January.....	22	30	62	18	-15	32	14	3.6	12	2.5	6.0	18.8	21.0	78	1.01	71	1.01	167	57	NW.
February.....	24	32	58	17	-15	32	19	3.8	11	2.8	5.4	20.3	16.0	77	1.04	71	1.10	176	60	NW.
Winter mean.....	24	32		18			23	11.0	34	7.9	16.1	51.1		78	1.08	71	1.13	163	57	NW.
March.....	32	39	78	25	-7	40	23	4.0	13	1.6	3.7	14.4	17.5	73	1.35	73	1.54	211	57	NW.
April.....	43	51	78	36	14	49	36	3.1	11	1.3	3.8	4.0	12.5	69	2.04	71	2.18	249	60	NW.
May.....	54	62	94	46	30	60	49	3.5	12	2.9	3.4		T.	73	3.31	76	3.44	267	58	S.
Spring mean.....	43	51		36				10.6	36	5.8	10.9	18.4		72	2.23	73	2.39	242	58	NW.
June.....	63	71	96	55	42	67	57	3.3	11	2.9	2.8	0.0	0.0	75	4.61	77	4.73	282	61	S.
July.....	68	77	97	60	48	72	65	3.4	12	5.0	1.9	T.	T.	75	5.43	78	5.65	304	65	S.
August.....	67	74	95	59	46	70	62	3.5	11	0.4	4.4	0.0	0.0	79	5.36	80	5.61	285	66	S.
Summer mean....	66	74		58				10.2	34	8.3	9.1	T.		76	5.13	78	5.33	290	64	S.
September.....	60	68	94	52	33	64	55	3.3	10	2.7	8.2	0.0	0.0	80	4.30	80	4.44	240	64	S.
October.....	49	56	84	42	26	56	43	3.8	10	3.5	7.5	T.	T.	79	2.78	77	2.93	183	54	NW.
November.....	38	45	72	32	-6	43	29	3.9	11	3.7	7.5	4.8	14.8	79	1.87	74	1.89	132	46	NW.
Fall mean.....	49	56		42				11.0	31	9.9	23.2	4.8		79	2.98	77	3.09	185	55	NW.
Annual mean.....	46	53	97	38	-17			42.8	135	31.9	59.3	74.3	21.0	76	2.86	75	2.98		58	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 17; July 13, 20, 28, 29.	1899	Jan. 2.....	June 5, 6.
1895	Feb. 6, 7.....	June 2; Sept. 21, 22.	1900	None.....	June 27, 28; July 17, 18; Aug. 11.
1896	Jan. 6; Feb. 17.....	May 10; June 20; July 12; Aug. 12.	1901	Jan. 20.....	June 27, 30; July 14-16.
1897	None.....	Sept. 10.	1902	Dec. 9.....	July 9.
1898	None.....	July 3, 4.	1903	None.....	Sept. 14.

NEW HAMPSHIRE.

Northern section: COOS COUNTY. Station: STRATFORD.

N. B. WATERS, Observer

[Established July, 1886. Latitude, 44° 40'. Longitude, 71° 35'. Elevation, 650 feet.]

The station is located about 100 rods east of the Connecticut River and the same distance north of Bay Brook. The latter rises in the eastern part of the town and furnishes water facilities for several lumber mills. The valley of the river is about 1 mile wide, extending northwest and southeast. A great part of it is usually flooded for a short time in spring, in some instances damaging crops. There is a strip of sandy soil which rises abruptly about 50 feet, extending back to the foot of some hills that are several hundred feet in height, mostly covered with a heavy growth of mixed timber. The station is equipped with standard instruments and shelter. The maximum and minimum thermometers are exposed in a shelter which is located on posts in the yard, about 5 feet above soil. The rain gage has ground exposure, top 3 feet above ground, with location 50 feet from buildings.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	Average depth. In. Greatest depth in 24 hours. In.
December.....	21	31	62	11	-28	31	8	2.7	8	1.8	3.4	14.6 10.5
January.....	17	28	56	6	-31	26	8	2.4	9	2.4	2.2	15.6 9.0
February.....	18	31	57	6	-32	24	12	2.2	8	2.8	1.5	16.9 16.0
Winter mean.....	19	30		8				7.3	25	7.0	7.1	47.1
March.....	28	40	73	17	-22	37	20	2.7	9	4.0	2.8	9.1 15.0
April.....	42	55	88	29	2	49	37	1.8	7	1.1	2.9	2.1 8.0
May.....	56	70	97	41	19	61	50	3.1	9	0.2	4.9	T. 0.5
Spring mean.....	42	55		29				7.6	25	5.3	10.6	11.2
June.....	65	78	99	52	30	69	58	3.8	11	3.2	5.8	0.0 0.0
July.....	68	82	100	55	32	74	65	4.3	11	3.3	10.0	0.0 0.0
August.....	66	79	99	52	33	68	59	3.4	9	2.7	2.9	0.0 0.0
Summer mean.....	66	80		53				11.5	31	9.2	18.7	0.0 0.0
September.....	59	73	96	45	25	65	55	3.3	9	0.5	2.4	0.0 T.
October.....	46	58	90	35	12	52	41	2.6	9	2.3	1.4	0.3 2.0
November.....	34	43	72	26	-10	39	29	3.2	9	1.1	5.7	9.2 18.0
Fall mean.....	46	58		35				9.1	27	3.9	9.5	
Annual mean.....	43	56	100	31	-32			35.5	108	25.4	45.9	67.8 18.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 10, 13, 14, 20, 26; Feb. 5, 6, 13, 16, 17, 22, 24-26; Dec. 26, 28-31.	July 1, 18-20, 27-30; June 11, 15-17, 22, 23, 30.	1899	Jan. 1, 2, 10-13, 19, 20, 28, 30, 31; Feb. 1, 5, 10, 12, 15; Mar. 18.	July 3-5; Aug. 19-21, 30, 31.
1895	Jan. 3, 5, 19; Feb. 1, 6, 7, 9, 10, 23.	June 2, 9-12, 17-20; July 8, 20, 21; May 6, 10, 11; Aug. 11, 18; Sept. 21-23.	1900	Jan. 3; Feb. 2, 3, 17, 26-28; Dec. 10, 11, 17, 18.	June 27; July 7, 17, 18; Aug. 26; Sept. 3
1896	Jan. 5-7, 29; Feb. 17-19, 22, 26, 27; Mar. 11, 14, 15; Dec. 25, 27, 28.	May 9, 10; June 4, 5; July 2, 10, 12, 21, 22, 29, 30; Aug. 7-15; Sept. 11, 12.	1901	Jan. 3, 4, 19, 20, 23, 30; Feb. 2, 3, 12, 22; Mar. 2, 7; Dec. 6, 7, 22.	May 21; June 28-29; July 15, 16, 18; Sept. 6, 7.
1897	Jan. 14, 19, 20, 25, 31; Feb. 1, 14, 27; Mar. 1; Dec. 29, 30.	July 3, 5-9, 12, 18-20; Aug. 8; Sept. 9, 10.	1902	Jan. 2, 15, 20, 21, 28; Feb. 5-7, 14, 16; Dec. 6-10, 13, 15, 24.	None.
1898	Jan. 2, 4, 18, 28, 29, 30, 31; Feb. 3, 4, 18; Dec. 12, 14, 28, 29.	July 3.	1903	Jan. 10, 18-20, 24, 25; Feb. 8, 18, 20; Dec. 15, 17-19, 27-29.	July 9; Sept. 15, 16.

NEW HAMPSHIRE.

Northern Section: GRAFTON COUNTY. Station: BETHLEHEM.

BENJAMIN TUCKET, Observer.

[Latitude, 44° 14'. Longitude, 71° 45'. Elevation, 1,470 feet.]

Bethlehem is situated in a hilly and mountainous section of the State. The station is located on the north side of the main street, at the residence of the observer, at a little lower level than most of the neighboring residences. The thermometers are of standard make, exposed in a standard Weather Bureau shelter, elevated about 6 feet above the ground. The shelter stands in an open space about 85 feet from the southeast corner of the dwelling. The rain gage, which is of Weather Bureau standard type, is located east of the house, with no trees or fences near.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	20	29	58	12	-21	25	16	2.6	10	1.8	2.2	14.0	13.0	SW.
January.....	16	25	53	6	-25	19	8	2.2	10	2.7	2.8	16.9	13.0	SW.
February.....	18	27	57	8	-26	25	11	2.7	9	1.9	5.4	22.9	18.0	W.
Winter mean.....	18	27		9				7.5	29	6.4	10.4	53.8		SW.
March.....	28	38	70	19	-13	36	22	3.4	12	1.5	1.4	19.9	18.0	W.
April.....	42	52	82	31	6	45	35	2.2	11	1.9	3.1	8.1	11.0	SW.
May.....	54	65	86	43	20	58	50	3.0	12	2.4	2.8	0.2	2.0	SW.
Spring mean.....	41	52		31				8.6	35	5.8	7.3	28.2		SW.
June.....	62	73	92	52	32	67	58	4.0	12	3.5	5.1	0.0	0.0	SW.
July.....	66	77	92	56	38	70	64	4.2	13	2.6	2.6	0.0	0.0	SW.
August.....	64	74	88	54	36	67	61	3.6	12	2.1	7.1	0.0	0.0	SW.
Summer mean.....	64	75		54				11.8	37	8.2	14.8	0.0		SW.
September.....	57	67	86	47	27	59	51	3.3	11	3.4	5.1	0.0	T.	SW.
October.....	46	55	79	36	16	52	40	3.3	10	2.4	4.3	0.8	2.0	SW.
November.....	32	40	65	25	-3	38	28	3.2	11	1.8	4.1	11.2	10.0	W.
Fall mean.....	45	54		36				9.8	32	7.6	13.5	12.0		SW.
Annual mean.....	42	52	92	32	-26			37.7	133	28.0	46.0	94.0	18.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 13; Feb. 5, 16, 17, 23-25; Dec. 29, 30.	July 28.	1899	Jan. 1, 2, 10, 11, 28, 30; Feb. 10-12.	None.
1895	Jan. 5; Feb. 5-7, 9; Dec. 13.	July 8.	1900	Feb. 2, 26-28; Dec. 10, 17.	Do.
1896	Jan. 5-7; Feb. 17, 18, 26; Dec. 27.	None.	1901	Jan. 3, 18-20.	June 28; July 15, 16.
1897	Jan. 13, 19, 20, 25; Mar. 1; Dec. 25.	July 5, 7, 9	1902	Jan. 1; Dec. 8-10.	None.
1898	Jan. 2, 4, 28-31; Feb. 2, 3; Dec. 14, 28, 29.	None.	1903	Jan. 10, 18-20; Feb. 18, 19; Dec. 27-29.	Do.

NEW HAMPSHIRE.

Northern Section: GRAFTON COUNTY. Station: PLYMOUTH.

HELEN M. CLARK, Observer.

[Established 1888. Latitude, 43° 44'. Longitude, 71° 45'. Elevation, 500 feet.]

Plymouth is situated on the Baker River 2 miles west of the railroad station, and this river empties into the Pennegwasset River a fourth of a mile north of the station. The Baker River Valley is about one mile in width, comparatively level, and is flooded in times of high water. The ranges of hills north and south slope gradually to the valley. The hills on the south are from 140 to 150 feet high and are well wooded with timber. The hills on the north are a little higher and partially cleared. This station is situated on the south side of the road about 70 rods from the foot of the hills. It is equipped with standard maximum and minimum thermometers and rain gage. The thermometers are exposed in a standard Weather Bureau shelter. The instruments are well situated in an open space, about 40 feet from buildings.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	22	31	58	13	-18	30	17	3.5	9	1.8	2.3	17.8	10.0	W.
January.....	16	27	55	6	-28	24	8	3.3	9	2.8	4.2	21.2	15.0	W.
February.....	18	29	53	8	-38	22	13	3.3	9	2.1	5.1	20.8	11.0	W.
Winter mean.....	19	29		9				10.1	27	6.7	11.6	50.8		W.
March.....	26	33	73	19	-20	38	22	3.8	10	5.7	7.2	15.5	2.6	W.
April.....	42	54	88	30	8	47	36	3.5	9	1.8	3.6	4.4	7.0	W.
May.....	54	68	96	40	22	58	51	3.2	10	1.2	4.0	T.	1.0	W.
Spring mean.....	41	52		30				10.5	29	8.7	14.8	19.9		W.
June.....	64	78	100	50	30	68	59	3.6	11	2.7	3.1	0.0	0.0	W.
July.....	68	82	102	55	35	73	65	3.7	9	3.4	1.6	0.0	0.0	W.
August.....	66	79	96	53	35	69	61	4.2	9	2.9	3.9	0.0	0.0	W.
Summer mean.....	66	80		53				11.5	29	9.0	8.6	0.0		W.
September.....	58	71	93	46	24	62	52	3.4	8	3.1	8.0	0.0	0.0	W.
October.....	46	56	83	35	11	53	40	3.4	9	1.8	5.2	0.0	T.	W.
November.....	34	42	69	25	-1	38	28	3.5	10	1.5	5.3	5.1	6.0	W.
Fall mean.....	46	56		35				10.3	27	6.4	18.5	5.1		W.
Annual mean.....	43	54	102	32	-38			42.4	112	30.8	53.5	84.8	15.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 1, 10, 29; Feb. 13, 24; Dec. 30, 31.	June 16, 17; July 18-20, 28, 29.	1899	Jan. 13, 28, 31; Feb. 15.	July 1-4, 15, 26, Aug. 17, 21.
1895	Jan. 3, 30, 31; Feb. 1, 5-7, 13, 24.	May 6, 7, 10, 11; June 1, 2, 11-14, 20-22; July 8, 20-22; Aug. 11; Sept. 21, 23.	1900	Jan. 3; Feb. 2-4, 27, 28.	June 6, 27, 28; July 7, 16, 17, 22-24, 29, 31; Aug. 6, 9, 11, 25-28; Sept. 3.
1896	Jan. 5-7; Feb. 17, 18, 26; Mar. 14, 15.	May 9, 10; June 20; July 1, 2, 9, 12, 18, 21, 29, 30; Aug. 7-12; Sept. 11.	1901	Jan. 19, 20, 23; Feb. 2; Mar. 7; Dec. 6, 7.	May 22; June 22, 25-30; July 1, 2, 14-16, 18.
1897	Jan. 19, 20, 25; Feb. 1, 4, 5, 25, 27, 28; Mar. 1.	June 24; July 5-9, 16, 17, 19.	1902	Feb. 5, 12; Dec. 9, 10, 28, 29.	May 23; July 8; Aug. 3; Sept. 1.
1898	Jan. 4, 13, 29-31; Feb. 3-5; Dec. 14.	June 30; July 2, 3, 7, 8, 19, 20, 22, 27, 29, 30; Aug. 3, 4; Sept. 3.	1903	Jan. 19, 20; Feb. 18, 20, 21.	July 8-10.

NEW HAMPSHIRE.

Southern Section: MERRIMACK COUNTY. Station: CONCORD.

H. C. Howe, Observer.

[Latitude, 43° 12' N. Longitude, 71° 32' W. Elevation, 280 feet.]

The compact part of the city of Concord is built on the western rise of land from the Merrimack River, occupying a portion of the bed of a prehistoric lake. The eastern part of this interval is fronted by a steep terrace, rising to a plain 125 feet above the river. The western, or city slope, rises gradually, but soon reaches an equal elevation. The crests of these slopes are only broken on the north and south by the Merrimack. Westerly and northwesterly from the station, at a distance of from 1 to 7 miles, are several hills, varying in height from 500 to 810 feet above the sea.

In some measure it will be seen that Concord has a local climate, being protected from the high winds of the general storms which pass across the country, and yet being subject to erratic summer storms. Fog formation is also frequent during certain seasons of the year.

From 1871 to November 1, 1902 the records were kept by the late Judge W. L. Foster and Prof. W. W. Flint of St. Paul's School, voluntary observers, and a regular Weather Bureau station was established on November 1, 1902.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxi- ma.	Absol- ute maxi- mum.	Mean of the mini- ma.	Absol- ute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	26	35	63	17	-24	35	18	3.3	9	2.9	3.5	14.7
January.....	21	32	72	11	-35	31	13	3.3	9	2.7	4.9	18.9
February.....	23	34	68	12	-34	32	15	3.3	8	2.2	3.7	19.1
Winter mean.....	23	34	.....	13	.....	.....	.....	9.9	26	7.8	12.1	52.7
March.....	32	45	77	21	-16	40	24	3.6	9	1.2	4.9	14.8
April.....	44	56	92	33	7	51	37	2.8	8	1.6	2.8	4.4
May.....	57	69	95	45	22	64	51	3.1	9	4.8	4.5	T.
Spring mean.....	44	57	.....	33	.....	.....	.....	9.5	26	7.6	12.2	19.2
June.....	65	76	100	54	34	70	59	3.3	10	1.9	2.6	0.0
July.....	70	80	100	59	38	75	66	4.0	10	2.9	1.0	0.0
August.....	67	78	98	57	35	74	61	3.7	9	0.6	3.7	0.0
Summer mean.....	67	78	.....	57	.....	.....	.....	11.0	29	5.4	7.3	0.0
September.....	60	71	96	50	25	66	54	3.2	8	2.3	11.0	T.
October.....	49	60	92	39	17	58	44	3.5	8	2.8	5.6	0.1
November.....	37	47	80	28	-17	42	29	3.4	8	1.8	4.2	6.5
Fall mean.....	49	59	.....	39	.....	.....	.....	10.0	24	6.9	20.8	6.6
Annual mean.....	46	57	100	35	-35	.....	.....	40.4	105	27.7	52.4	78.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 6, 14, 24, 25; Dec. 30.	June 17, 23; July 1, 2, 13, 18-20, 28, 29; Aug. 25.	1899	Jan. 2; Feb. 15.....	June 5, 6, 13, 14, 24; July 2-6; Aug. 19.
1895	Feb. 1, 6; Dec. 13.....	May 7; June 2, 20; July 8, 21; Sept. 21-23.	1900	Jan. 3, 4; Feb. 2, 3, 27..	May 15; June 27, 28; July 7, 8, 16-18, 23, 24, 29; Aug. 6, 9-11, 25, 26; Sept. 3.
1896	Jan. 6, 7; Feb. 17, 18..	May 9, 10; July 2, 12, 13, 21, 29; Aug. 8-13.	1901	Jan. 19, 20; Feb. 2; Dec. 6, 7.	June 6, 26-30; July 2, 14-16, 18, 22.
1897	Feb. 1; Mar. 1.....	July 5-9, 17; Sept. 10.	1902	Dec. 8, 9.....	None.
1898	Jan. 4, 18, 29, 31; Feb. 3-5; Dec. 14.	July 3, 4, 8, 19-21, 29, 30; Aug. 4, 24.	1903	Jan. 20; Feb. 20, 21...	July 8-10; Sept. 14.

NEW HAMPSHIRE.

Southeastern Section: STRAFFORD COUNTY. Station: DURHAM.

AGRICULTURAL EXPERIMENT STATION, Observer.

[Established 1893. Latitude, 43° 8' N. Longitude, 70° 50' W. Elevation, 93.5 feet.]

This station is on the grounds of the New Hampshire College of Agriculture and Mechanic Arts. It was established in 1893; but the records previous to 1895 were lost by fire. Tide water comes within one-half mile of the station, in the Oyster River. The station is in open country, about 12 miles from the sea and 3 miles from an inlet called Great Bay. Its elevation is as great as any within 1 mile. The country for several miles is broken, but with no elevations of more than 200 feet above sea level, the elevations gradually increasing toward the west. There is a ridge about 200 feet high, halfway between Durham and the sea on the east. Severe northwest winds are characteristic of this station. Summer temperatures are modified by sea breezes from the east. The thermometers are exposed in a shelter on the roof of the agricultural experiment station, 45 feet from the ground. The rain gage is on a slight elevation, sloping away in all directions, about 100 feet from the nearest building on the southeast. The top of gage is 30 inches from the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year 1899.	Total amount for the wettest year 1897.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	27	36	71	19	-22	31	23	3.7	8	1.6	5.3	9.8	17.0	NW.
January.....	23	32	55	13	-14	25	20	4.1	6	6.7	4.8	17.9	12.0	NW.
February.....	24	33	60	16	-18	28	19	4.1	7	2.0	2.3	13.6	12.0	NW.
Winter mean.....	25	34		16				11.9	21	10.3	12.4	41.3		NW.
March.....	33	43	73	25	-6	42	28	5.4	10	4.8	4.4	10.4	8.0	NW.
April.....	44	54	86	34	13	47	41	3.4	8	1.4	2.5	0.9	7.0	NW.
May.....	55	66	93	43	25	58	51	2.6	9	1.1	4.9	0.0	0.0	SE.
Spring mean.....	44	54		34				11.4	27	7.3	11.8	11.3		NW.
June.....	63	74	97	53	34	67	58	3.6	9	1.1	8.8	0.0	0.0	SE.
July.....	70	80	98	59	40	72	66	3.6	9	4.0	7.0	0.0	0.0	SE.
August.....	67	78	98	57	42	70	62	3.1	8	1.0	3.0	0.0	0.0	S.
Summer mean.....	67	77		56				10.3	26	6.1	18.8	0.0		SE.
September.....	61	72	95	50	30	63	58	4.1	9	5.1	2.7	0.0	0.0	SW.
October.....	50	60	88	40	18	54	43	3.8	8	2.2	0.5	T.	T.	NW.
November.....	39	47	72	30	7	42	35	3.8	9	2.0	6.8	4.0	15.0	NW.
Fall mean.....	50	60		40				11.7	26	9.3	10.0	4.0		NW.
Annual mean.....	46	56	98	36	-22			45.3	100	33.0	53.0	56.6	17.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JULY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1895	None	July 8; Aug. 24; Sept. 21-23.	1900	None	May 15; June 27, 28; July 7, 8, 16-18, 23, 24; Aug. 6, 9-11, 26, 27; Sept. 3.
1896	Jan. 6; Feb. 17, 18.	May 10; June 19-21; July 2, 10, 12, 13; Aug. 4, 9-12.	1901	Jan. 20.	June 6, 26-30; July 1, 3, 14-16, 21, 22.
1897	None	July 5, 8, 9; Sept. 9, 10.	1902	Dec. 9.	June 3; Sept. 1.
1898	Jan. 31; Feb. 3.	June 25; July 3, 4, 8, 29, 30; Aug. 24.	1903	Jan. 20.	May 18; July 9, 10; Sept. 14, 15.
1899	None	June 5, 6, 14, 24; July 3-6, 21, 22; Aug. 19.			

NEW HAMPSHIRE.

Southwestern Section: CHESHIRE COUNTY. Station: KEENE.

SAMUEL WARDSWORTH, Observer.

[Established 1893. Latitude, 45° 57' N. Longitude, 72° 15' W. Elevation, 506 feet.]

The station is located in the Ashelot River Valley, which at this place is 3 to 4 miles wide and nearly level. It is bordered by ranges of hills rising to 600 and 700 feet. The thermometers are exposed in a Weather Bureau shelter on the grounds of the observer. The exposure is in an open space 50 feet from the residence of the observer and 4½ feet above sod. The rain gage, Weather Bureau pattern, is on an open lawn, 25 feet from the building.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	24	34	61	14	-22	29	21	3.3	8	2.8	5.2	14	9.0	NW.
January.....	20	30	53	10	-28	23	15	2.6	8	1.9	2.5	15.1	12.0	NW.
February.....	20	32	58	9	-28	25	15	3.1	8	2.2	1.8	18.7	15.0	NW.
Winter mean.....	21	32		11				9.0	25	6.9	9.5	47.8		NW.
March.....	32	43	79	22	-12	44	26	3.6	11	1.2	4.1	11.2	9.0	NW.
April.....	44	56	87	32	12	46	41	2.6	10	1.7	2.7	1.2	3.0	NW.
May.....	56	69	92	42	21	58	53	3.2	11	3.5	3.6	T.	T.	NW.
Spring mean.....	44	56		32				9.4	32	6.4	10.4	12.4		NW.
June.....	64	71	98	51	33	67	60	3.4	10	2.5	5.7	0.0	0.0	NW.
July.....	68	81	98	56	37	72	65	4.2	11	2.6	10.2	0.0	0.0	SW.
August.....	66	77	91	54	35	69	61	4.2	10	1.0	4.0	0.0	0.0	NW.
Summer mean.....	66	76		54				11.8	31	6.1	19.9	0.0		NW.
September.....	60	72	93	47	25	66	53	3.2	8	3.5	1.8	0.0	0.0	NW.
October.....	49	61	86	37	17	53	45	3.9	10	2.2	1.9	T.	T.	NW.
November.....	36	45	73	26	-1	40	30	3.1	10	2.0	6.0	4.9	8.0	NW.
Fall mean.....	48	59		37				10.2	28	7.7	9.7	4.9		NW.
Annual mean.....	45	56	98	33	-28			40.4	116	27.1	49.5	65.1	15.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	No data for Jan.; Feb. 6, 17, 24, 25; Dec. 29, 30.	June 17, 23; July 1, 2, 13, 19, 20, 28, 29; Aug. 24, 25.	1899	Jan. 1, 2, 11; Feb. 11, 15	July 3, 4, 6, 27; Aug. 19-21.
1895	Jan. 5, 20; Feb. 1, 6, 7, 24; Dec. 13.	May 10, 11; June 2; Sept. 21-23.	1900	Jan. 4; Feb. 2, 3, 27, 28.	June 27, 28; July 7, 16-18; Aug. 7, 10, 11, 25, 27; Sept. 6.
1896	Jan. 6, 7; Feb. 17, 18; Mar. 14.	May 9, 10; July 2.	1901	Jan. 19, 20; Feb. 2, 3; Dec. 6, 7.	June 26-30; July 15-18, 21, 22; Sept. 7.
1897	Feb. 1, 5, 14; Mar. 1....	June 5, 6, 9; Sept. 10.	1902	Jan. 14, 20; Dec. 9, 10, 15, 28.	July 8, 14.
1898	Jan. 2, 4, 28-31; Feb. 3, 4; Dec. 14.	June 25; July 3, 21, 29, 30; Aug. 4, 24; Sept. 1, 3, 4.	1903	Jan. 19, 20; Feb. 18, 20, 21; Dec. 27, 29.	May 18, 20; July 8-10; Sept. 14.

NEW HAMPSHIRE.

Southern Section: HILLSBORO COUNTY. Station: NASHUA.

THE JACKSON COMPANY, Observer.

[Established September, 1885. Latitude, 42° 46'. Longitude, 71° 28' 45". Elevation, 125 feet.]

This station is in the northeasterly part of the city, near the junction of the Merrimac and Nashua rivers. The hills about the city range in height from 185 to 275 feet above sea level.

The maximum, minimum, dry, and wet bulb thermometers are exposed in a "Hazen screen" and are hung 5½ feet above the sod.

The rain gage is 54 feet from the nearest building. Height of rim above the ground is 17 inches.

The anemometer, sunshine recorder, wind vane, and wind pressure gage are on towers of the mills, 75 feet from the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Total sunshine (aver- age hours).	Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	28	36	64	18	-18	36	21	3.8	10	3.4	5.0	12.5	12.0	113	NW.
January.....	23	32	63	13	-25	30	14	3.9	11	2.8	2.6	17.2	15.0	113	NW.
February.....	25	34	60	14	-20	30	20	4.0	10	3.0	4.2	18.0	16.0	128	NW.
Winter mean.....	25	34		15				11.7	31	9.2	11.8	47.7		118	NW.
March.....	34	43	78	24	-6	42	29	4.2	12	0.9	7.1	13.7	20.0	144	NW.
April.....	46	58	88	34	15	49	40	3.0	9	2.5	1.4	3.6	7.0	172	NW.
May.....	58	70	95	44	22	61	53	3.4	10	3.6	4.9	0.0	0.0	199	NW.
Spring mean.....	46	57		34				10.6	31	7.0	13.4	17.3		172	NW.
June.....	67	78	100	54	35	70	60	2.9	9	0.3	3.4	0.0	0.0	204	NW.
July.....	71	83	100	59	42	74	68	3.4	10	3.4	3.8	0.0	0.0	225	SE.
August.....	68	80	97	57	38	72	64	4.0	9	0.5	5.9	0.0	0.0	210	SE.
Summer mean.....	69	80		57				10.3	28	4.2	13.1	0.0		213	SE.
September.....	61	73	95	50	26	65	57	3.2	8	3.0	6.0	0.0	0.0	174	NW.
October.....	49	60	88	38	18	54	44	3.7	10	3.0	7.4	0.0	0.0	146	NW.
November.....	38	47	72	29	3	43	33	3.5	10	3.0	1.3	4.4	14.0	120	NW.
Fall mean.....	49	60		39				10.4	28	9.0	14.7	4.4		147	NW.
Annual mean.....	47	58	100	36	-25			43.0	118	29.4	53.0	69.4	20.0	162	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 6, 17, 24, 25.....	June 11, 16, 17, 18, 22, 23, 26; July 1, 2, 13, 19, 20, 25, 28, 29; Aug. 8, 24, 25.	1899	Jan. 2; Feb. 15.....	May 1; June 1, 5, 6, 8, 13, 14, 24; July 3-6, 21, 27; Aug. 13, 18, 19.
1895	None.....	May 10, 11; June 1, 2, 11, 20; July 8, 21; Aug. 6, 24; Sept. 21-23.	1900	Jan. 4.....	May 15; June 27, 28; July 7, 8, 16-18, 23-25; Aug. 6, 9-11, 25-27; Sept. 3, 6.
1896	Jan. 6, 12; Feb. 17, 18; Dec. 28.	May 9, 10; June 19-21; July 1, 2, 10, 12, 13, 29; Aug. 4, 8-13; Sept. 11.	1901	Jan. 20; Dec. 20.....	May 22; June 6, 26-30; July 1-3, 14-16, 18, 21, 22, 24; Sept. 5-7.
1897	Feb. 1.....	July 5-9, 17; Sept. 9, 10.	1902	Dec. 9, 10.....	May 23; June 2, 3; July 8, 9, 14, 15; Aug. 2, 3; Sept. 1.
1898	Jan. 4, 31; Feb. 3, 4; Dec. 14.	June 8, 25; July 3, 4, 8, 21, 29, 30; Aug. 4, 8, 24; Sept. 2, 3, 4.	1903	Jan. 20; Feb. 20, 21; Dec. 29.	May 8, 20; July 2, 8-12, 30; Sept. 14, 15.

VERMONT.

Northern Section: FRANKLIN COUNTY. Station: ENOSBURG.

L. H. POMEROY, Observer.

[Established 1891. Latitude, 44° 52' N. Longitude, 72° 45' W. Elevation, 601 feet.]

The station is in the northern limits of the village, which is on the Missisquoy River, and is about 20 miles east of Lake Champlain, and 8 miles from the Canadian line. About 6 miles south are the foothills of the Green Mountains, known locally as Baker's Field Mountain, which has an elevation of 2,000 feet. About 10 miles east in the main range is Jay Peak, 4,020 feet elevation. The country in the immediate vicinity of the station is rolling, with but few trees. The station is some 60 rods from the river and about 50 feet above it, with graded descent. The thermometers are exposed in a Weather Bureau shelter, 20 feet from the observer's house. The shelter is 4½ feet from the sod, with trees 10 feet from the shelter. The rain gage is about 20 feet from the house and the top of the gage is 30 inches above ground. All instruments and equipment were furnished by the Weather Bureau.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	
December.....	22	31	68	12	-32	32	15	3.3	12	2.3	5.2	18.8	S.
January.....	16	27	58	5	-30	20	9	2.9	12	2.9	5.2	22.1	W.
February.....	16	27	56	5	-32	20	8	3.5	10	4.6	3.6	29.7	W.
Winter mean.....	18	28		7				9.7	34	9.8	14.0	70.6	W.
March.....	29	39	74	19	-24	37	23	3.7	11	5.1	6.0	19.4	W.
April.....	43	54	83	32	5	46	38	2.4	10	3.0	2.7	3.0	W.
May.....	54	66	89	43	15	58	51	3.5	12	0.4	2.9	0.1	W.
Spring mean.....	42	53		31				9.6	33	8.5	11.6	22.5	W.
June.....	64	75	93	52	32	68	60	3.9	14	4.1	5.4	0.0	W.
July.....	68	79	94	56	35	70	65	5.2	11	5.0	3.8	0.0	S.
August.....	64	76	94	52	34	66	59	4.1	11	3.8	5.7	0.0	W.
Summer mean.....	65	77		53				13.2	36	12.9	14.9	0.0	W.
September.....	58	70	91	46	25	62	53	2.9	9	0.5	2.8	0.0	W.
October.....	48	58	83	37	12	54	40	3.2	10	3.4	3.3	0.2	S.
November.....	34	42	70	25	-9	39	28	3.6	12	1.6	5.7	13.2	W.
Fall mean.....	47	57		36				9.7	31	5.5	11.8	13.4	W.
Annual mean.....	43	54	94	32	-32			42.2	134	36.7	52.3	106.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	No data for Jan.; Feb. 5, 6, 14, 16, 17, 24, 25; no data for Dec.	July missing.	1900	Jan. 16, 17; Feb. 1, 2, 5, 6, 26, 27; Dec. 9-11, 17, 18.	July 7; Aug. 25, 26; Sept. 3.
1895	Jan. 5; Feb. 3, 5-7, 22-24; Dec. 9, 13, 14.	July 8.	1901	Jan. 2, 18-20, 29; Feb. 2, 3, 7, 8, 10, 11, 21-23, 25; Mar. 2, 3; Dec. 5, 6.	June 27-29; July 14-16, 18.
1896	Jan. 5-8, 29, 31; Feb. 16-18, 22, 26; Mar. 14, 25; Dec. 24, 27.		1902	Jan. 13, 14, 19, 28-30; Feb. 4-7, 14, 15, 19, 20, 22; Dec. 8, 9, 11-15.	July 8.
1897	Jan. 13-15, 19, 24, 25, 30, 31; Feb. 1, 5, 11, 27; Mar. 1; Dec. 25, 28, 29.	July 4, 5, 7-9.	1903	Jan. 8, 9, 18-20, 22-24; Feb. 17-19; Dec. 14-18, 26, 28.	
1898	Jan. 2, 4, 17, 18, 27-31; Feb. 2, 3; Dec. 12-14, 28.	July 3; Sept. 4.			
1899	Jan. 1, 2, 10-12, 28, 30; Feb. 5, 10-12, 15.	Aug. 20.			

VERMONT.

Northwestern Section: CHITTENDEN COUNTY. Station: BURLINGTON.

W. B. GATES, Observer.

[Established 1871. Latitude, 44° 29' N. Longitude, 73° 12' W. Elevation, 220 feet.]

Records of the temperature in Burlington had been kept from 1838 up to the establishment of a Signal Service station May 24, 1871. A record of the time of the annual freezing and breaking up of the ice in Lake Champlain has been kept since 1816. The Signal Service station was fully equipped, reporting by telegraph to Washington three times daily, with two additional local observations. It was discontinued June 15, 1883. Mr. Gates, the present observer, took up the work in the latter part of October, 1883, and was supplied with an exposed thermometer, maximum and minimum thermometers, and a rain gage. An instrument shelter was constructed of double blinds, with a slanting roof and slats for the bottom, and attached to the lower half of a second-story window on the north side of the house.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1884, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	16	31	59	19	-17	35	10	1.9	13	2.0	2.1	12.3	15.0	S.	
January.....	20	28	59	14	-20	27	10	1.9	13	1.3	2.5	17.9	12.0	N.	
February.....	21	28	55	15	-21	26	11	1.6	11	1.0	1.1	14.9	12.0	N.	
Winter mean....	22	29		16				5.4	37	4.3	5.7	45.1		N.	
March.....	30	39	70	25	-17	40	19	2.2	12	1.3	2.5	15.5	18.0	N.	
April.....	45	54	85	39	14	48	40	1.9	10	0.9	4.0	2.6	9.0	N.	
May.....	58	66	90	49	28	63	55	3.1	12	3.5	5.0	0.0	0.0	N.	
Spring mean....	44	53		38				7.2	34	5.7	11.5	18.1		N.	
June.....	68	75	94	59	42	73	63	3.4	13	1.4	5.6	0.0	0.0	N.	
July.....	71	79	96	64	48	74	68	3.9	13	1.6	8.5	0.0	0.0	N.	
August.....	69	76	94	62	43	73	64	4.2	12	1.5	4.1	0.0	0.0	S.	
Summer mean....	69	76		62				11.5	38	4.5	18.2	0.0	0.0	S.	
September.....	62	70	91	56	34	65	55	3.5	11	2.9	2.1	0.0	0.0	S.	
October.....	50	58	82	46	20	56	42	2.8	12	3.6	1.5	T.	3.0	S.	
November.....	38	43	70	32	0	42	33	2.9	12	2.0	4.4	7.8	15.0	N.	
Fall mean.....	50	57		45				9.2	35	8.5	8.0	7.8		S.	
Annual mean....	46	54	96	40	-21			33.3	144	23.0	43.4	71.0	18.0	N.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 17, 24, 25; Dec. 29.	June 17; July 2, 19, 20, 28, 29.	1899	Jan. 10, 11; Feb. 11...	Aug. 18, 19.
1895	Feb. 6, 7.	June 12, 19.	1900	None.	July 7, 16, 17; Aug. 11, 26.
1896	Jan. 5-7; Feb. 17, 18.	July 2, 21; Aug. 8, 9.	1901	Jan. 19, 20.	June 27-29; July 15, 16.
1897	Jan. 19, 25.	July 4-9; Sept. 10.	1902	Dec. 9.	None.
1898	Jan. 30, 31.	None.	1903	Jan. 19.	July 9.

VERMONT.

Northeastern Section: CALEDONIA COUNTY. Station: ST. JOHNSBURY.

THE FAIRBANKS MUSEUM, Observer.

[Established March, 1894. Latitude, 44° 28' N. Longitude, 72° W. Elevation, 711 feet.]

This station is on the main street of the town, which is situated on a plateau running north and south and surrounded by the hills which slope back from the Connecticut Valley, 10 miles to the east.

The maximum and minimum thermometers are exposed in a shelter, such as is furnished by the Weather Bureau, with slatted sides and a sloping roof. It stands 5 feet above the ground in a vacant lot east of the building, which is a large stone structure. The shelter is 25 feet from the building and has about 50 feet of open space on the other sides. The rain gage is 15 feet south of the instrument shelter, and the top is 5 feet from the ground. Observations are taken at 5 p. m. daily.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	20	29	61	11	-25	25	16	2.5	12	1.0	3.9	14.1	9.5	N.
January.....	14	24	49	4	-34	16	8	2.3	11	0.7	2.2	19.9	12.5	N.W.
February.....	16	27	53	6	-31	23	11	2.1	10	3.2	1.8	18.7	13.5	N.W.
Winter mean.....	17	27		7				6.9	33	4.9	7.9	52.7		N.W.
March.....	29	39	75	19	-21	39	21	3.4	14	4.3	2.7	14.3	16.5	N.W.
April.....	43	54	86	31	9	47	40	2.0	10	1.1	2.8	1.8	4.0	N.W.
May.....	55	67	87	43	19	58	50	2.8	12	1.8	4.3	T.	T.	N.W.
Spring mean.....	42	53		31				8.2	36	7.2	9.8	16.1		N.W.
June.....	63	75	92	52	32	67	60	3.3	12	2.4	6.0	0.0	0.0	S.
July.....	68	79	93	57	36	71	66	4.6	13	3.9	6.4	0.0	0.0	W.
August.....	64	75	89	53	35	68	60	4.1	10	3.3	4.0	0.0	0.0	N.W.
Summer mean.....	65	76		54				12.0	35	9.6	16.4	0.0	0.0	W.
September.....	58	70	91	47	26	61	55	3.0	10	3.2	2.2	0.0	0.0	S.
October.....	46	56	78	36	15	50	42	2.3	11	2.4	1.2	T.	0.2	S.
November.....	33	41	66	25	-3	38	29	3.2	12	3.4	5.2	7.6	10.0	N.
Fall mean.....	46	56		36				8.5	33	9.0	8.6	7.6		S.
Annual mean.....	42	53	93	32	-34			35.6	137	30.7	42.7	76.4	16.5	N.W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD MARCH 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Dec. 28, 29-31.....	July 20, 28.	1900	Jan. 3; Feb. 2, 3, 6, 27, 28; Mar. 12, 13, 18; Dec. 10, 11, 17, 18.	July 17.
1895	Jan. 1, 3, 5, 25, 30; Feb. 6, 7, 9, 10, 24; Dec. 13, 14.	None.	1901	Jan. 3, 4, 19, 20, 23, 30; Feb. 1, 2, 3, 9, 12, 22, 23; Mar. 1, 3, 6, 7; Dec. 6, 7.	June 27-29; July 15-17.
1896	Jan. 5-7, 29; Feb. 17, 18, 22, 26; Mar. 14, 24; Dec. 25-28.	Do.	1902	Jan. 1, 2, 5, 20, 31; Feb. 4, 6, 7, 16; Dec. 7, 9, 10, 12, 13, 15.	None.
1897	Jan. 13, 14, 19, 20, 24, 25, 30, 31; Feb. 1, 5, 11, 14, 27, 28; Mar. 1, 17; Dec. 25.	July 5, 8, 9.	1903	Jan. 10, 19, 20, 24; Feb. 18, 20, 21; Dec. 15, 17, 19, 27, 29.	July 9, 10; Sept. 4, 15.
1898	Jan. 2, 4, 18, 25, 28-31; Feb. 3, 4; Dec. 14, 29.	July 3, 4.			
1899	Jan. 2, 10-13, 19, 20, 28, 30, 31; Feb. 5, 6, 11, 12, 15; Dec. 31.	July 4.			

VERMONT.

Central District: WASHINGTON COUNTY. Station: NORTHFIELD.

W. A. SHAW, Observer.

[Established by Signal Service, March 1, 1887. Latitude, 44° 10' N. Longitude, 72° 41' W. Elevation, 858 feet.]

This station is in the open country outside the southern limit of the village of Northfield. It is on the north end of a ridge about one-third of a mile long, which rises 100 feet above the surrounding valley. The valley varies from one-third to three-fourths of a mile in width. On the easterly side of the valley the hills rise quite rapidly to about 1,400 feet about a mile away. On the westerly side they rise less rapidly to about 600 feet. On account of the topography the wind direction is northerly or southerly.

The standard instrument shelter is located 300 feet southwest of Dewey Hall and is 16 feet above sod. The rain and snow gages are 3 feet above ground. The anemometer, windvane, and electrical sunshine recorder are on a platform on the south end of the roof of Dewey Hall. The sunshine data are from eight years' record, 1896-1903; the humidity, fifteen years, 1889-1903. Remainder of tabulated data are from the full period of observation, seventeen years, March 1, 1887, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 20	° F. 29	° F. 60	° F. 12	° F. -27	° F. 31	° F. 9	In. 2.8	13	In. 2.3	In. 2.5	In. 15.0	In. 21.0	P. ct. 80	Gr. a. m. 0.94	P. ct. 78	Gr. p. m. 1.12	Hr. 93	P. ct. 33	S.
January.....	15	32	61	6	-15	24	6	2.6	13	1.8	5.0	21.0	23.0	80	0.72	79	0.87	124	43	S.
February.....	17	26	59	6	-32	22	12	2.7	12	1.7	2.7	21.0	15.0	78	0.70	74	0.87	125	43	S.
Winter mean.....	17	29	.....	8	.....	.....	.....	8.1	38	5.8	10.2	57.0	.....	79	0.70	77	0.95	114	40	S.
March.....	26	26	75	17	-18	38	20	2.9	14	4.0	4.8	20.0	26.0	79	1.07	75	1.27	159	43	S.
April.....	40	46	85	30	-1	54	24	1.9	12	1.2	2.9	4.0	6.0	72	1.90	70	2.07	196	49	S.
May.....	53	65	90	42	18	71	59	2.5	13	1.5	3.5	1.0	6.0	73	3.19	71	3.44	231	50	S.
Spring mean.....	40	46	.....	30	.....	.....	.....	7.3	39	6.7	11.2	25.0	.....	75	2.05	72	2.26	195	47	S.
June.....	62	74	95	50	30	78	69	3.0	13	1.6	6.2	0.0	0.0	75	4.44	76	4.99	244	53	S.
July.....	66	77	95	54	34	70	63	3.3	14	3.4	1.3	0.0	0.0	77	5.40	78	5.64	296	50	S.
August.....	63	74	92	52	33	66	57	3.8	13	0.8	3.4	0.0	0.0	84	5.12	83	5.45	246	57	S.
Summer mean.....	64	75	.....	52	.....	.....	.....	10.1	40	5.8	10.9	0.0	.....	79	4.99	79	5.36	242	53	S.
September.....	56	68	90	45	24	61	52	2.6	11	4.2	6.3	T.	T.	85	3.85	83	4.16	196	52	S.
October.....	45	55	83	41	12	51	39	2.1	13	2.5	3.5	T.	20.0	84	2.57	79	2.70	154	45	S.
November.....	33	41	70	25	-14	38	27	2.9	13	2.4	3.8	8.0	12.0	82	1.59	78	1.93	90	31	S.
Fall mean.....	45	55	.....	37	.....	.....	.....	7.6	37	9.1	13.6	8.0	.....	84	2.67	80	2.93	147	43	S.
Annual mean.....	41	51	95	32	-32	.....	.....	33.1	154	27.4	45.9	90.0	26.0	79	2.62	77	2.88	175	46	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 5, 6, 14, 16, 17, 22, 24, 25; Dec. 28-30.	July 19, 20, 28.	1899	Jan. 1, 2, 10-12, 19, 20, 27-31; Feb. 11, 12, 15.	June 5; July 2; Aug. 18, 19, 21.
1895	Jan. 1, 5, 19; Feb. 1, 5-7, 9, 24; Dec. 13.	May 11, 30; June 10; Sept. 21, 23.	1900	Jan. 3, 4; Feb. 2, 26-28; Mar. 13; Dec. 10, 11, 16-18.	July 7, 16, 17; Aug. 11, 26.
1896	Jan. 5-8, 20; Feb. 16-18, 22, 25, 26; Mar. 14, 24; Dec. 28.	July 2; Aug. 11; Sept. 11.	1901	Jan. 3, 19, 20, 30; Feb. 3; Mar. 3; Dec. 6, 7.	June 26-29; July 2, 15, 16.
1897	Jan. 13, 14, 19, 20, 25, 31; Feb. 1, 5, 11, 14, 28, 27; Mar. 1; Dec. 20.	July 5-9; Sept. 10.	1902	Jan. 2, 20, 31; Feb. 5, 7, 16; Dec. 6-10, 12-15, 24.	None.
1898	Jan. 2, 4, 17, 18, 27-31; Feb. 2, 3; Dec. 13, 14, 28, 29.	July 3, 29; Sept. 4.	1903	Jan. 10, 19, 20, 24; Feb. 17-20; Dec. 15, 17-19, 26-29.	Do.

VERMONT.

Western Section: ADDISON COUNTY. Station: CORNWALL.

C. H. LANE, Observer.

[Established May, 1886. Latitude, 44° N. Longitude, 73° W. Elevation, 507 feet.]

The station is located nearly midway north and south of what is known as the Champlain Valley, about 5 miles from the base of Green Mountain and 10 miles from Lake Champlain. The station is located on a ridge running north and south, and the highest point in town is only about 50 feet higher. The thermometers and instrument shelter were furnished by the Weather Bureau and are located about 40 feet distant from the dwelling, with ground exposure. The rain gage is 15 feet east of the shelter and about the same distance from the house.

Tabulated data of temperature are for the period from 1894 to 1903, and precipitation data for the period from 1886 to 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	24	32	61	17	-16	29	19	2.2	6	3.2	3.4	11.3	12.0	
January.....	19	28	54	10	-20	20	16	2.4	7	1.6	2.2	13.9	15.0	
February.....	13	19	55	7	-24	25	15	2.2	7	2.8	1.0	17.2	12.0	
Winter mean.....	19	26		11				6.8	20	7.6	6.6	42.4		
March.....	30	39	72	22	-9	41	22	2.6	8	1.1	2.0	12.5	24.0	
April.....	46	56	84	36	11	47	43	1.8	7	1.3	3.5	0.9	4.0	
May.....	56	67	94	46	25	60	54	2.9	8	2.0	4.3	0.0	0.0	
Spring mean.....	44	54		35				7.3	23	4.4	9.8	13.4		
June.....	66	76	97	55	38	69	62	3.1	9	1.8	4.9	0.0	0.0	
July.....	70	80	96	61	42	74	67	3.9	9	3.6	8.7	0.0	0.0	
August.....	68	77	96	58	39	70	62	4.0	8	7.1	3.2	0.0	0.0	
Summer mean.....	68	78		58				11.0	26	12.5	16.8	0.0	0.0	
September.....	62	71	91	52	31	63	58	3.0	8	1.6	1.7	0.0	0.0	
October.....	50	59	80	41	12	55	44	2.3	7	0.9	1.6	T.	0.5	
November.....	36	43	69	28	0	41	32	3.0	7	1.0	5.4	7.8	14.0	
Fall mean.....	49	58		40				8.3	22	3.5	8.7	7.8		
Annual mean.....	45	54	97	36	-24			33.4	91	28.0	41.9	63.6	24.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 5; Feb. 14, 16, 17, 24, 25; Dec. 29, 30.	July 2, 19, 20, 27-30; June 17.	1899	Jan. 2, 10, 12; Feb. 10-12.	July 2, 4, 15; Aug. 18-21.
1895	Jan. 5; Feb. 5-8.	June 2, 10, 11; Sept. 21, 23.	1900	Feb. 2, 27.	June 28; July 7, 16, 17, 20, 24; Aug. 6, 11, 26.
1896	Jan. 5-7; Feb. 17, 18, 22, 25.	July 2; Aug. 5, 10.	1901	Jan. 19, 20.	June 26-29; July 2, 15, 16.
1897	Jan. 13, 19, 25.	July 5-7, 9.	1902	Dec. 9.	None.
1898	Jan. 4, 30, 31.	July 3, 20, 29; Sept. 3, 4.	1903	Jan. 19; Feb. 18.	May 18; July 9, 10.

VERMONT.

Western Section: WINDSOR COUNTY. Station: WOODSTOCK.

JOHN S. EATON, Observer.

[Established 1891. Latitude, 43° 46' N. Longitude, 72° 34' W. Elevation, 700 feet.]

The station is equipped with a standard rain gage and maximum and minimum thermometers, all supplied by the Weather Bureau. The thermometers have a northeast exposure. They are attached to the gable end of the office building about 18 feet from the ground, are not exposed to the direct rays of the sun at any season, and are protected from the wind by blinds. By comparison with other thermometers in this vicinity the readings are found to be about 2° lower, but within a hundred yards there is a self-registering thermometer (about 30 feet higher) whose readings are nearly identical with the station instruments.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	22	32	64	12	-34	26	17	3.1	8	2.2	5.0	15.8	13.5
January.....	16	28	55	4	-31	20	7	2.8	7	1.9	2.2	24.0	18.0
February.....	18	29	51	6	-36	24	12	2.9	6	2.7	2.7	24.3	19.0
Winter mean.....	19	30		7				8.8	21	6.8	9.9	64.1	
March.....	30	40	73	20	-25	41	21	3.5	8	7.0	4.0	19.2	22.0
April.....	41	52	83	30	6	45	38	2.9	7	1.2	3.8	2.3	5.0
May.....	54	68	93	41	17	59	30	3.3	9	0.9	3.6	0.0	T.
Spring mean.....	42	53		30				9.7	24	9.1	11.4	21.5	
June.....	64	77	99	51	32	69	60	3.2	9	2.0	3.6	0.0	0.0
July.....	68	81	99	56	36	73	66	3.6	10	4.7	4.6	0.0	0.0
August.....	65	77	93	53	34	67	61	3.5	9	2.7	3.9	0.0	0.0
Summer mean.....	66	78		53				10.3	28	9.4	12.1	0.0	
September.....	58	70	91	45	26	61	53	2.9	8	3.4	5.8	0.0	0.0
October.....	46	57	79	36	14	50	40	2.7	7	2.1	4.5	T.	1.0
November.....	35	45	77	25	-4	41	30	2.9	7	1.5	0.7	7.5	8.0
Fall mean.....	46	57		35				8.5	22	7.0	11.0	7.5	
Annual mean.....	43	55	99	32	-36			37.3	95	32.3	44.4	93.1	22.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 20; Feb. 5, 6, 14, 17, 22, 24-26; Dec. 28-31.	July 1, 2, 18-20, 27-29; June 11, 16-18, 23.	1899	Jan. 2, 10, 11, 13, 19, 20, 28-30; Feb. 6, 10-12, 15.	July 4, 5; Aug. 19.
1895	Jan. 1-3, 5, 20, 30; Feb. 1, 3, 6, 7, 10, 23, 24; Mar. 6; Dec. 13, 14.	June 1, 2, 10-12, 18-20; May 6, 7, 10, 30; July 8, 21; Sept. 21, 23.	1900	Jan. 4, 9, 18; Feb. 3, 27, 28; Dec. 10, 11, 17, 18.	May 6, 7, 10, 30; Aug. 6, 11, 26.
1896	Jan. 5-8, 12; Feb. 17, 18, 22; Mar. 14, 15; Dec. 25-28.	May 9, 10; June 20; July 2, 3; Aug. 5, 10-12; Sept. 12.	1901	Jan. 19, 20, 23, 30; Feb. 1-3; Mar. 7; Dec. 6, 7.	June 26-29; July 2, 3, 14, 16; Aug. 17.
1897	Jan. 13, 19, 20, 25, 30, 31; Feb. 1, 2, 4, 5, 14, 27; Mar. 1, 17.	July 3-10; Sept. 10.	1902	Jan. 1, 2, 5, 14, 18, 20, 21, 29, 31; Feb. 5-7, 11, 16; Dec. 7, 9, 10.	None.
1898	Jan. 17, 18, 27-31; Feb. 1-5; Dec. 14, 29.	July 3.	1903	Jan. 9, 19, 20, 24, 25; Feb. 8, 18, 20, 21; Dec. 15, 17, 19, 29.	July 9, 10.

VERMONT.

Western Section: RUTLAND COUNTY. Station: WELLS.

E. R. PEMBER, Observer.

[Established 1891. Latitude, 43° 28' N. Longitude, 73° 10' W. Elevation, 1,000 feet.]

The station is located on a farm a little northeast of the central part of the town. It is in a hilly and somewhat mountainous district near the western base of Northeast Mountain, the elevation of which is 2,200 feet. Other hills of less elevation are a mile or two distant. The thermometers are exposed in a shelter furnished by the Weather Bureau attached to the north side of the house 3½ feet above the ground. The rain gage is about 30 feet from any building or trees, and the top of the gage is 2 feet above the ground. The station was established in December, 1891, by the present observer.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	23	31	60	15	-25	28	18	2.8	8	1.9	3.3	11.2	8.0	SW.
January.....	18	27	56	9	-18	20	10	2.2	10	2.0	3.4	16.0	18.0	NW.
February.....	19	28	58	10	-26	24	13	2.2	11	1.6	1.5	18.5	16.0	SW.
Winter mean.....	20	29	.....	11	.....	.....	.....	7.8	25	5.5	8.2	45.7	.....	SW.
March.....	29	38	68	20	-10	39	22	3.7	11	1.6	3.9	14.6	12.0	S.
April.....	42	51	80	33	10	44	37	1.8	8	1.4	3.2	1.6	3.0	SW.
May.....	56	67	89	44	24	59	53	2.7	11	2.7	5.6	0.0	0.0	SW.
Spring mean.....	42	52	.....	32	.....	.....	.....	8.2	30	5.7	12.7	16.2	.....	SW.
June.....	64	76	94	53	33	69	60	3.3	11	3.3	5.3	0.0	0.0	S.
July.....	69	80	95	58	40	72	66	4.4	12	2.4	10.1	0.0	0.0	S.
August.....	66	76	92	56	37	68	61	4.8	11	2.4	5.7	0.0	0.0	S.
Summer mean.....	66	77	.....	56	.....	.....	.....	12.5	34	8.1	21.1	0.0	.....	S.
September.....	60	69	86	50	28	63	54	3.5	9	3.3	2.4	0.0	0.0	S.
October.....	48	58	80	39	18	53	43	2.7	9	3.7	1.3	0.0	0.0	S.
November.....	34	42	66	27	0	39	29	3.2	11	2.6	6.6	6.7	10.0	SW.
Fall mean.....	47	56	.....	39	.....	.....	.....	9.4	27	9.6	10.3	6.7	.....	S.
Annual mean.....	44	54	95	34	-26	.....	.....	37.9	116	28.9	52.3	68.6	18.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 11; Feb. 5, 17, 24, 25; Dec. 29, 30.	June 23; July 1, 2, 19, 20, 28, 29.	1899	Jan. 1, 2, 10, 11; Feb. 10-12, 14.	June 5-7; July 3, 4; Aug. 19, 21.
1895	Jan. 5; Feb. 5-8; Dec. 13.	June 2.	1900	Feb. 2, 27; Dec. 10....	July 16-18; Aug. 6, 11.
1896	Jan. 6, 7; Feb. 17, 18; Dec. 27, 28.	Aug. 6.	1901	Jan. 3, 19, 20; Feb. 7..	June 27-29; July 1, 2, 15, 16.
1897	Jan. 13, 19, 25; Mar. 1.	July 5, 6, 9.	1902	Jan. 1, 2, 4; Dec. 8, 9..	None.
1898	Jan. 2, 4, 28, 30, 31; Feb. 2; Dec. 14.	July 3, 20.	1903	Jan. 9, 19, 20, 24; Feb. 18.	July 9.

VERMONT.

Southern Section: WINDHAM COUNTY. Station: JACKSONVILLE.

MARTHA FRENCH, Observer.

[Established 1886. Latitude, 42° 43' N. Longitude, 72° 50' W. Elevation, 1,000 feet.]

Jacksonville is the principal village of the township of Whitingham, Windham County. The village is located in the northern part of the township on the banks of the North River, surrounded by abruptly rising hills. The station is equipped with standard thermometers, exposed in a standard Weather Bureau shelter on the grounds and near the residence of the observer. The rain gage is exposed on the ground and near the shelter.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	32	56	12	-24	32	15	4.3	12	4.5	3.9	24.9	12.0	NW.
January.....	18	30	55	7	-29	27	12	4.3	12	2.9	5.1	23.4	15.0	NW.
February.....	20	32	54	7	-32	36	13	4.6	10	2.7	5.1	27.3	15.0	NW.
Winter mean.....	20	31		9				13.2	34	10.1	14.1	75.6		NW.
March.....	28	40	71	16	-18	38	20	4.5	12	2.2	7.2	20.1	13.0	NW.
April.....	41	54	85	28	4	45	37	3.9	10	2.6	5.0	6.2	7.5	NW.
May.....	54	67	88	40	20	59	50	3.8	12	3.5	6.2	T.	T.	NW.
Spring mean.....	41	54		28				12.2	34	8.3	18.4	26.3		NW.
June.....	62	75	95	48	31	65	56	3.9	12	1.0	4.6	0.0	0.0	NW.
July.....	65	78	95	52	38	73	59	4.8	11	1.7	2.6	0.0	0.0	NW.
August.....	62	76	93	49	34	66	53	4.3	10	0.8	6.5	0.0	0.0	NW.
Summer mean.....	63	76		50				13.0	33	3.5	13.7	0.0		NW.
September.....	56	69	88	43	23	62	51	3.9	10	5.5	7.8	0.0	0.0	NW.
October.....	44	56	88	33	10	50	39	4.1	10	5.1	6.9	0.7	4.0	NW.
November.....	34	43	72	24	-1	39	26	3.9	10	2.9	6.9	8.0	9.5	NW.
Fall mean.....	45	56		33				11.9	30	13.5	21.6	8.7		NW.
Annual mean.....	42	54	95	30	-32			50.3	131	35.4	67.8	110.6	15.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 6, 7, 16, 23, 24; Dec. 30, 31.	July 19, 20, 28.	1899	Jan. 2, 28, 30; Feb. 10, 11, 14, 15.	None.
1895	Jan. 1, 3, 5, 28; Feb. 1, 3-6, 9, 10, 21, 24.	None.	1900	Jan. 30; Feb. 1-3, 26, 27; Dec. 12, 15.	July 6, 7, 17, 18.
1896	Jan. 4-8, 12, 16, 23; Feb. 17, 18, 28; Mar. 23; Dec. 27, 28.	July 3; Aug. 11, 12.	1901	Jan. 18, 19; Mar. 7; Dec. 5, 6.	June 26-29; July 2, 14, 16.
1897	Jan. 19, 25, 29-31; Feb. 1, 5, 14, 27.	July 5, 6, 9.	1902	Jan. 20; Dec. 9-13.....	None.
1898	Jan. 3, 4, 29, 30; Feb. 1-4; Dec. 14.	None.	1903	Jan. 19, 20, 21, 25, 26; Feb. 14, 17, 21; Dec. 27, 30.	Do.

MASSACHUSETTS.

Northeastern Section: ESSEX COUNTY. Station: LAWRENCE.

SIMON BLAKELIN, Observer.

[Established by Essex Company in January, 1885. Latitude, 42° 42' N. Longitude, 71° 10' W. Elevation, 60 feet.]

This station is near the western limits of the city proper and its surroundings are open river to the south and west and factories and buildings to the east and north. The station is on the north bank of the Merrimac River and a mile away from the hills which surround the valley. The elevation of the neighboring hills, which almost surround the valley, does not exceed 100 to 200 feet.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, 48 feet north of Mr. Blakelin's house.

The rain gage is 10 feet east of the shelter, 44 feet from the house (which has one story and attic), and about 15 feet from the branches of a fruit tree, and 5 feet from the branches of an elm tree. The top of the gage is 1 foot above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	37	63	20	-14	37	21	3.6	12	3.2	4.8	10.2	13.0	NW.
January.....	24	33	62	14	-25	31	15	3.8	12	3.0	4.4	15.9	12.0	NW.
February.....	24	34	60	15	-19	30	19	3.7	11	3.1	4.0	16.8	30.0	NW.
Winter mean.....	25	35		16				11.1	35	9.3	13.2	42.9		NW.
March.....	34	43	76	24	-4	43	27	4.1	12	1.1	4.9	10.2	15.0	NW.
April.....	46	58	87	34	16	50	41	3.2	11	2.0	3.4	2.4	10.5	NW.
May.....	58	70	96	46	27	62	54	3.6	12	4.0	4.2	0.0	0.0	NW.
Spring mean.....	46	57		35				10.9	35	7.1	12.5	12.6		NW.
June.....	67	78	99	55	38	71	60	3.0	10	0.5	2.5	0.0	0.0	NW.
July.....	72	84	102	61	47	75	68	3.4	10	4.0	2.8	0.0	0.0	NW.
August.....	69	80	97	59	43	72	64	3.9	10	0.8	4.2	0.0	0.0	NW.
Summer mean.....	69	81		58				10.3	30	5.3	9.5	0.0		NW.
September.....	62	72	94	52	31	66	56	3.2	9	2.8	7.7	0.0	0.0	NW.
October.....	50	60	88	41	22	55	44	3.8	10	3.8	5.9	0.0	T.	NW.
November.....	39	48	73	30	7	43	34	3.8	12	2.7	6.2	2.6	10.0	NW.
Fall mean.....	50	60		41				10.8	31	9.3	19.8	2.6		NW.
Annual mean.....	48	58	102	38	-25			43.1	131	31.0	55.0	58.1	30.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 13, 29; Feb. 6, 17, 24, 25; Dec. 30.	June 11, 16-18, 22, 23, 26; July 1, 2, 13, 19, 20, 28, 29.	1899	Jan. 1, 2, 10, 11; Feb. 9-11, 15.	May 1; June 5, 6, 14; July 3, 4, 6, 27; Aug. 19.
1895	Jan. 3, 5, 30, 31; Feb. 1, 5-9, 24.	May 9-11; June 1, 2, 11, 12, 14; July 21; Aug. 6, 8, 11, 14; Sept. 21-23.	1900	Jan. 3-5; Feb. 27.....	May 15; June 27, 28; July 7, 8, 16-18, 23; Aug. 6, 9-11, 25-27; Sept. 3, 6.
1896	Jan. 6, 7, 12, 16; Feb. 17, 18; Dec. 27, 28.	May 9, 10; June 5, 18, 20, 21; July 1, 2, 10, 12, 13, 18, 21, 26, 30; Aug. 4, 7-13.	1901	Jan. 14, 19, 20; Feb. 2, 3; Dec. 7, 22.	June 26-30; July 1-3, 15, 16, 21, 22, 24; Sept. 5, 7.
1897	Jan. 19, 20; Feb. 1, 5, 14; Mar. 1; Dec. 29.	June 25; July 5-9, 11, 15-17, 19, 21, 23, 24; Aug. 6-8, 14; Sept. 6, 9, 10.	1902	Jan. 20; Feb. 5; Dec. 8-10, 15, 28.	June 3; July 9, 14.
1898	Jan. 4, 29-31; Feb. 3-5; Dec. 14, 16.	June 25; July 3, 4, 29, 30; Aug. 24; Sept. 3.	1903	Jan. 19, 20; Feb. 18-21; Dec. 27, 29, 31.	May 18, 19; July 2, 8-11; Sept. 14.

MASSACHUSETTS.

Northern Section: WORCESTER COUNTY. Station: FITCHBURG.

A. P. MASON, Observer.

[Established, 1883. Latitude, 42° 35' N. Longitude, 71° 47' W. Elevation, 550 feet.]

The station is located in the residential portion of the city and on a decided hill at the residence of the observer, surrounded by ample grounds. Observations were begun in 1883, using an ordinary thermometer and home-made rain gage. In 1888 standard maximum and minimum thermometers and rain gage were purchased by the observer, and since January 1, 1889, all observations have been from these instruments. The station is also equipped with a standard shelter, furnished by the Weather Bureau. The thermometers are exposed in the shelter over sod, about 4½ feet from ground, and about 40 feet from any buildings or trees. The gage is exposed near the shelter.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- mum.	Absolute maxi- mum.	Mean of the mini- mum.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	28	35	63	21	-14	37	20	3.9	9	3.5	4.9	12.2	13.0
January.....	24	31	60	16	-14	30	16	4.1	9	2.6	3.6	14.9	14.0
February.....	25	32	60	17	-16	31	19	4.9	9	2.5	4.6	17.3	12.0
Winter mean.....	26	33	.....	18	.....	.....	.....	12.9	27	8.6	13.3	44.4	.....
March.....	32	40	75	25	-4	42	26	4.0	12	1.1	5.2	11.6	16.0
April.....	46	55	87	36	15	52	40	3.3	9	3.3	3.6	2.0	11.0
May.....	57	68	93	47	28	62	54	3.6	10	3.6	4.4	0.0	0.0
Spring mean.....	45	54	.....	36	.....	.....	.....	10.9	31	8.0	13.2	13.6	.....
June.....	66	76	96	57	39	74	59	3.0	9	1.0	4.0	0.0	0.0
July.....	70	80	100	60	42	76	57	2.9	10	1.8	2.6	0.0	0.0
August.....	68	78	97	58	40	73	54	4.4	9	0.7	4.8	0.0	0.0
Summer mean.....	68	78	.....	58	.....	.....	.....	10.3	28	3.5	11.4	0.0	.....
September.....	61	71	95	52	34	68	56	3.4	8	4.0	10.9	0.0	0.0
October.....	49	58	86	41	22	54	43	4.0	9	4.0	5.9	0.0	0.0
November.....	39	46	72	31	5	44	33	3.9	9	3.2	6.4	3.5	16.0
Fall mean.....	50	58	.....	41	.....	.....	.....	11.3	26	11.2	23.2	3.5	.....
Annual mean.....	47	56	100	38	-16	.....	.....	45.4	112	31.3	61.1	61.5	16.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 13; Feb. 6, 17, 24, 25; Dec. 30.	June 11, 16-18, 22, 23; July 1, 2, 13, 19, 20, 28, 29; Aug. 23-25.	1899	Jan. 2, 10, 11; Feb. 9-12, 15.	May 1; June 5, 6, 14; July 3, 4; Aug. 19.
1895	Jan. 3, 5; Feb. 6-9.....	May 10, 11; June 1, 2; Sept. 21-23.	1900	Jan. 4; Feb. 2, 27.....	May 15; June 27, 28; July 7, 8, 17, 18, 23, 24; Aug. 6, 10, 11, 25-27; Sept. 3.
1896	Jan. 5-7, 16; Feb. 17, 18; Dec. 2, 8.	May 9, 10; July 12, 13; Aug. 8-12.	1901	Jan. 19, 20; Dec. 6, 7....	June 6, 26-30; July 1-3, 15, 16, 18, 22, 24; Sept. 5.
1897	Jan. 19, 20; Mar. 1.....	July 5, 6, 9; Sept. 9, 10.	1902	Dec. 9, 10.....	June 3; July 9, 14.
1898	Jan. 4, 20-31; Feb. 2-4; Dec. 13, 14.	July 3, 4, 30; Aug. 24; Sept. 1, 3, 4.	1903	Jan. 19, 20; Feb. 18-21; Dec. 27.	May 19, 20; July 8-10; Sept. 14.

MASSACHUSETTS.

Western Section: BERKSHIRE COUNTY. Station: PITTSFIELD.

LOUIS B. CUMMINGS, Observer.

[Station established February, 1894, and closed December 31, 1901. Latitude, 42° 30' N. Longitude, 73° 15' W. Elevation, 1,050 feet.]

Pittsfield is located in the extreme western portion of the State, on a beautiful plateau among the Berkshire Hills, which are so widely known for their beautiful scenery and healthful conditions. In the near vicinity of the city are six lakes, which form the headwaters of the Housatonic River. The station was equipped with standard instruments, the thermometers being exposed in a north window, standard shelter. The rain gage, of accepted pattern, was exposed on the ground 20 feet distant from the building. The station was established and the observations made by the observer.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	26	34	60	18	-13	29	24	3.5	8	3.8	2.2	9.1	14.0	W.
January.....	21	29	55	13	-14	23	19	2.9	8	2.3	5.8	14.0	9.0	W.
February.....	20	28	53	12	-17	25	15	3.2	8	1.4	3.7	15.8	10.5	W.
Winter mean.....	22	30	.....	14	.....	.....	.....	9.6	24	7.5	11.7	38.9	.....	W.
March.....	30	38	55	22	-6	38	25	3.8	9	1.9	2.4	6.6	6.0	W.
April.....	44	53	82	35	12	46	41	3.3	8	4.2	3.6	0.1	1.0	W.
May.....	56	67	87	46	25	60	54	3.4	11	2.3	5.3	0.0	0.0	W.
Spring mean.....	43	53	.....	34	.....	.....	.....	10.5	28	8.4	11.3	6.7	.....	W.
June.....	66	76	96	55	36	68	61	3.5	9	2.4	7.4	0.0	0.0	W.
July.....	70	80	96	59	39	74	65	5.2	10	4.3	2.9	0.0	0.0	W.
August.....	67	77	90	57	40	70	64	4.5	9	2.4	9.3	0.0	0.0	W.
Summer mean.....	68	78	.....	57	.....	.....	.....	13.2	28	9.1	19.6	0.0	.....	W.
September.....	60	70	87	51	32	64	58	4.0	8	3.6	2.4	0.0	0.0	W.
October.....	49	58	80	40	22	51	43	3.0	8	2.2	8.0	0.0	0.0	W.
November.....	37	44	68	30	5	41	31	3.9	11	4.3	4.9	7.1	17.0	W.
Fall mean.....	49	57	.....	40	.....	.....	.....	10.9	25	10.1	15.3	7.1	.....	W.
Annual mean.....	46	54	96	36	-17	.....	.....	44.2	105	35.1	57.9	52.7	17.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FEBRUARY 1, 1894, TO DECEMBER 31, 1901.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. missing; Dec. 29, 30.	July 21, 30.	1898	Jan. 2, 4, 5, 30, 31; Feb. 2-4; Dec. 14, 15.	July 4.
1895	Jan. 1, 5; Feb. 1, 5-9, 24, 25.	None.	1899	Jan. 2, 3, 10-13; Feb. 9-14.	None.
1896	Jan. 6-9, 12, 16; Feb. 17-19, 26; sec. 28, 29.	None.	1900	Feb. 2, 3, 26-28; Dec. 17, 18.	July 8, 18; Aug. 12.
1897	Jan. 13, 19, 20, 25, 26, 31; Feb. 1, 14, 27; Mar. 1.	July 7.	1901	Jan. 3, 19, 20; Feb. 1-3, 6, 7, 13, 14, 23; Dec. 6-8, 22.	June 27-30; July 1-4, 15-17, 19, 22, 25.

MASSACHUSETTS.

Central Section: HAMPSHIRE COUNTY. Station: AMHERST.

HATCH EXPERIMENT STATION OF THE MASSACHUSETTS AGRICULTURAL COLLEGE, Observer.

[Established January 1, 1889. Latitude, 42° 23' 48.5" N. Longitude, 72° 31' 10" W. Elevation, 222½ feet.]

The observatory is situated on a minor ridge in the eastern part of a broad portion of the Connecticut Valley. The Holyoke range lies 5 miles to the south, a minor range 6 miles to the north, and rising ground about one-half mile to the east.

The tower is provided with an anemoscope and a sunshine recorder.

The maximum and minimum thermometers and Draper recording thermometer are exposed in a standard thermometer shelter on the campus in an open place, 200 feet from any building or large tree. The United States Weather Bureau rain gage is exposed on the campus near the thermometer shelter. The top of the rain gage is 2 feet above ground. Observations are made at 8 a. m. and 8 p. m.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	Average hours.	Percent of possible.	
December.....	° F. 27	° F. 37	° F. 65	° F. 18	° F. -15	° F. 36	° F. 22	In. 3.7	10	In. 3.5	In. 7.2	In. 10.7	131	46	NW.
January.....	24	34	62	16	-22	26	16	3.5	11	2.2	3.0	13.0	134	46	NW.
February.....	25	34	58	15	-19	32	19	3.4	10	1.7	2.5	15.4	145	49	NW.
Winter mean.....	25	35		16				10.6	31	7.4	12.7	39.1	137	47	NW.
March.....	34	43	76	26	-6	43	29	4.1	12	1.8	3.5	9.2	167	45	NW.
April.....	46	58	88	35	16	48	42	2.9	10	1.8	2.4	1.8	204	51	NW.
May.....	57	70	94	45	24	61	55	3.8	11	4.0	4.4	0.0	227	50	SW.
Spring mean.....	46	57		35				10.8	33	7.6	10.3	11.0	199	49	NW.
June.....	66	77	98	54	34	69	62	3.9	10	3.1	6.6	0.0	239	52	SW.
July.....	70	81	100	58	40	73	66	5.4	12	1.6	14.5	0.0	236	51	SW.
August.....	68	80	97	57	37	71	62	4.2	11	0.3	4.3	0.0	214	50	SW.
Summer mean.....	68	79		56				13.5	33	5.0	25.4	0.0	250	51	SW.
September.....	62	74	97	50	28	66	56	4.0	9	4.6	1.9	0.0	194	52	SW.
October.....	50	61	89	39	20	55	46	3.8	10	4.8	0.7	0.0	159	47	W.
November.....	38	48	74	29	4	42	34	3.6	10	3.1	5.8	2.0	116	40	NW.
Fall mean.....	50	61		39				11.4	29	12.5	8.4	2.0	156	46	W.
Annual mean.....	47	58	100	37	-22			46.3	126	32.5	56.8	52.1	180	48	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 6, 24, 25.....	June 11, 16, 17, 22, 23, 28; July 1, 3, 13, 17, 19, 20, 28, 29; Aug. 6, 23; Sept. 9.	1899	June 1, 2, 10, 11, 12; Feb. 9-12, 15.	June 5, 6; July 27; Aug. 20, 21.
1895	Jan. 3, 5; Feb. 6, 7, 9; Dec. 13.	May 9, 10, 30, 31; June 1, 2, 10, 11, 17, 18, 20; July 21, 22; Aug. 16, 24; Sept. 21-23.	1900	Jan. 4; Feb. 1-3, 27, 28.	May 15; June 27, 28; July 7, 16-18; Aug. 6, 9-11, 25, 26.
1896	Jan. 5-8, 12, 16; Feb. 17, 18; Dec. 24, 25, 27, 28.	May 9, 10; June 21; July 20; Aug. 5, 8-12	1901	Jan. 14, 19, 20; Feb. 9; Dec. 5-7.	June 26-30; July 1-3, 15, 16, 22; Sept. 5-7.
1897	Jan. 19, 20; Feb. 1, 2, 5, 14; Mar. 1; Dec. 29.	July 6, 9; Sept. 10.	1902	Jan. 20; Dec. 7, 9, 10, 15, 28.	May 23; July 14.
1898	Jan. 4, 23-31; Feb. 2-6; Dec. 13, 14.	July 3, 4, 30; Aug. 24; Sept. 1-4.	1903	Jan. 19, 20; Feb. 18, 20, 21; Dec. 26, 27, 29, 30.	May 18-20; July 8-10; Sept. 14.

MASSACHUSETTS.

Eastern Section: NORFOLK COUNTY. Station: BLUE HILL METEOROLOGICAL OBSERVATORY.

A. LAWRENCE ROTCH, Director.

[Established by A. Lawrence Rotch, February 1, 1885. Latitude 42° 13' N. Longitude 71° 7' W. Elevation 640 feet.]

The observatory is situated in Norfolk County, Mass., on the summit of Great Blue Hill, the highest peak of the Blue Hill Range. It is about 11 miles south-southwest from Boston and is surrounded on the north, west, and south sides by low plains, varying from 40 to 230 feet above sea level. On the east are the other summits of the Blue Hill Range. The sea coast is about 6 miles distant on the northeast.

Continuous automatic records are maintained of all the meteorological elements, except cloudiness, and are controlled by eye observations of standard instruments, made thrice daily.

The thermometers and hygrometers are exposed, from April to November, in a standard Hazen shelter, placed about 65 feet east of the observatory and 5 feet above the ground. From November to April the instruments are exposed in a single-louvre shelter with a slatted bottom, built from the north-northwest window of the observatory tower and 15 feet above the ground. Ventilation is secured by a double roof and by placing the shelter about 6 inches out from the wall, while radiation from the building is prevented by double windows.

The standard rain gage is a copper cylinder 14 inches deep and 8 inches in diameter, and projects 1 foot above the ground. It is placed near a Fergusson self-recording rain gage, in an inclosure about 150 feet northeast of the observatory.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	° F. 29	° F. 37	° F. 62	° F. 22	° F. -14	° F. 38	° F. 23	In. 3.8	10	In. 4.4	In. 2.3	In. 10.0	In. 12.0	P.ct. 76	Gr.s. 1.23	P.ct. 71	Gr.s. 1.31	Hr. 128	P.ct. 47	W.	
January.....	25	33	62	17	-15	32	17	4.1	12	3.2	4.2	15.0	15.0	76	1.00	72	1.12	128	45	W.	
February.....	26	33	61	18	-16	30	17	4.2	11	3.5	5.3	16.0	12.0	75	1.01	70	1.09	141	49	W.	
Winter mean.....	27	34	.....	19	.....	.....	.....	12.1	33	11.1	11.8	41	.....	76	1.00	71	1.17	132	47	W.
March.....	33	41	73	26	-3	43	24	4.5	12	1.2	2.7	11.0	13.0	75	1.45	70	1.60	162	45	NW.	
April.....	44	54	87	36	16	47	40	3.1	11	3.3	6.0	3.0	12.0	69	2.14	68	2.16	193	50	NW.	
May.....	56	66	93	46	28	59	52	3.6	12	3.1	4.1	T.	0.0	73	3.30	74	3.29	217	50	S.	
Spring mean.....	44	54	.....	36	.....	.....	.....	11.2	35	7.6	12.8	14.0	0.0	72	2.30	71	2.38	191	48	NW.
June.....	64	73	94	55	41	68	59	3.0	10	0.7	2.7	0.0	0.0	79	4.91	79	4.85	227	52	SW.	
July.....	69	78	97	60	46	72	66	3.8	11	3.0	7.4	0.0	0.0	80	5.79	81	5.87	251	56	SW.	
August.....	67	76	96	59	42	70	63	4.0	10	2.4	6.6	0.0	0.0	84	5.70	83	5.63	228	55	SW.	
Summer mean.....	67	76	.....	58	.....	.....	.....	10.8	31	6.1	16.7	0.0	0.0	81	5.47	81	5.45	235	54	SW.
September.....	61	70	93	53	33	64	57	4.3	10	2.7	3.0	0.0	0.0	84	4.67	83	4.61	191	53	SW.	
October.....	50	58	86	42	23	55	44	4.7	10	6.6	7.2	T.	0.0	82	3.01	78	2.96	163	52	NW.	
November.....	40	47	72	32	6	44	34	4.2	10	4.1	7.2	5.0	16.0	80	1.97	75	2.06	130	46	W.	
Fall mean.....	50	58	.....	42	.....	.....	.....	13.1	30	13.4	17.4	5.0	.....	82	3.22	79	3.21	161	50	W.
Annual mean.....	47	56	97	39	-16	.....	.....	47.2	129	38.2	58.7	60.0	16.0	79	3.02	75	3.05	180	50	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO FEBRUARY 1, 1904.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 13; Feb. 17, 24, 25.	June 17, 23; July 1, 13, 19-21, 28, 29.	1900	Feb. 27.....	May 15; June 27; July 7, 8, 16-18, 23;
1895	Feb. 5-9.....	June 2; Sept. 21-23.			Aug. 10, 11, 26, 27; Sept. 6.
1896	Jan. 6, 7; Feb. 17, 18; Dec. 27.	May 10; Aug. 10-12.	1901	Jan. 19, 20.....	June 28, 30; July 1-3, 16, 22.
1897	Jan. 19, 20.....	None.	1902	Dec. 9, 10.....	None.
1898	Jan. 4, 29, 30; Feb. 2; Dec. 14.	July 3, 4, 30.	1903	Jan. 19; Feb. 18, 19; Dec. 27, 29.	July 9, 10.
1899	Jan. 1, 2, 11; Feb. 9-12	June 5, 6, 14; July 3, 4.	1904	Jan. 2-6, 18, 19.	

MASSACHUSETTS.

Eastern Section: SUFFOLK COUNTY. Station: BOSTON.

J. W. SMITH, District Forecaster

[Established October, 1870. Latitude 42° 21' N. Longitude 71° 4' W. Elevation, 16 feet.]

Boston is located on the west end of Massachusetts Bay. The land surface is irregular, ranging in elevation from a few feet along the harbor front and water courses to 100 feet or more in the hilly sections of the suburban and residential portions.

The meteorological station was established in October, 1870, the office being located at the corner of Washington and State streets in the Old State House. The several buildings that were occupied as offices between the establishment of the station and 1884 were all within a half mile of the harbor front with about the same surrounding conditions. With the completion of the post-office and subtreasury building, across Milk street in Post-Office Square, the office was removed to the central tower of that structure on October 1, 1884, where it has since remained. The elevation of the barometer is 125 feet.

The instrumental equipment of the station has been added to and improved from time to time and now embraces all of the self-recording instruments. The elevation of thermometers above ground is 116 feet.

All rainfall measurements at the station have been made from gages exposed on the roofs of the several buildings where offices have been located. The present elevation of the rain gage is 154 feet above ground. The snowfall measurements have, however, been made at the Boston Common. The tabulated data are from the following periods of observation. Sunshine data, ten years, 1894-1903; humidity, fifteen years, 1889-1903. Remainder of data is from the whole period of observation, thirty-one years, January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, s.a. m.	Absolute, s.a. m.	Relative, s.p. m.	Absolute, s.p. m.	Average hours.	Percentage possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	32	40	66	24	-12	40	22	3.4	11	2.7	6.8	8.8	9.0	74	1.50	70	1.00	149	52	W.	
January.....	27	35	70	19	-13	36	20	3.9	12	4.9	7.6	11.9	14.7	73	1.18	70	1.30	151	51	W.	
February.....	28	36	64	20	-11	34	21	3.6	11	3.7	4.4	11.9	14.3	73	1.18	70	1.30	170	57	W.	
Winter mean.....	29	37	66	21	-12	36	21	10.9	34	11.3	18.8	32.6	14.3	73	1.29	70	1.40	157	53	W.	
March.....	35	43	76	28	-1	44	26	4.3	13	3.9	5.9	7.6	7.5	71	1.50	69	1.70	195	53	W.	
April.....	45	53	84	38	11	49	39	3.5	11	2.6	6.1	2.7	4.6	67	2.21	66	2.42	213	53	W.	
May.....	57	66	97	48	31	64	51	3.4	11	1.7	1.0	0.0	T.	70	3.39	68	3.53	258	57	SW.	
Spring mean.....	46	54	84	38	11	51	42	11.2	35	8.2	13.0	10.3	4.6	69	2.37	68	2.55	222	54	W.	
June.....	66	75	98	57	42	70	60	2.9	10	2.0	2.3	0.0	0.0	72	4.88	71	4.98	274	60	SW.	
July.....	72	80	101	63	46	75	68	3.4	11	3.6	4.6	0.0	0.0	71	5.67	72	5.93	276	60	SW.	
August.....	70	78	97	62	47	73	65	4.2	10	3.0	7.7	0.0	0.0	76	5.50	75	5.79	258	60	SW.	
Summer mean.....	69	78	98	61	46	73	64	10.5	31	8.6	14.6	0.0	0.0	73	5.35	73	5.57	269	60	SW.	
September.....	63	71	102	55	34	68	60	3.0	9	1.0	3.5	0.0	0.0	77	4.58	76	4.82	232	62	SW.	
October.....	53	60	90	45	25	58	48	3.9	10	2.5	6.8	0.0	0.5	77	3.14	73	3.19	185	54	W.	
November.....	42	49	75	34	-2	46	33	4.2	11	2.2	8.9	2.5	12.0	77	2.19	73	2.24	132	45	NW.	
Fall mean.....	53	60	84	45	11	51	42	11.1	30	5.7	19.2	2.5	4.6	77	3.30	74	3.42	183	54	W.	
Annual mean.....	49	57	102	41	-13	64	43	43.7	130	33.8	65.6	45.4	14.7	73	3.08	71	3.23	208	55	W.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 11, 16-18, 23; July 1, 13, 20, 28, 29; Aug. 8.	1899	Jan. 1, 2; Feb. 9-11...	June 5, 6, 8, 14; July 3, 4, 6, 27; Aug. 19.
1895	Feb. 6, 9.....	May 11, 31; June 2; Sept. 21-23.	1900	Feb. 27.....	May 15; June 27; July 7, 8, 16, 18, 23; Aug. 6, 10, 11, 25, 26; Sept. 3, 6.
1896	Jan. 6, 7; Feb. 17, 18..	May 10; June 20, 21; July 12, 13; Aug. 4, 7, 9, 10; Sept. 11.	1901	Jan. 19, 20.....	June 27-30; July 1-3, 15, 16, 18, 21, 22, 24
1897	None.....	July 5, 6, 9; Sept. 9, 10..	1902	Dec. 8, 10.....	June 3; July 14.
1898	Dec. 15.....	June 25, 26; July 1, 3, 4, 21, 30; Aug. 4, 8, 24; Sept. 3, 4.	1903	Jan. 19.....	July 2, 8-11, 30; Sept. 14.

MASSACHUSETTS.

Southern Section: HAMPDEN COUNTY. Station: MONSON.

G. E. FULLER, Observer.

[Established 1889. Latitude, 42°, 5' N. Longitude, 72°, 20' W. Elevation, 390 feet.]

This station is located on a "flat" in the central part of the village of Monson. The instruments are located on the grounds of the observer, which are fairly large, and located in the valley of Chicopee Brook, a branch of Chicopee River. To the west of the residence, 60 rods distant, the line of hills rises to a height of 600 feet, and to the east, 150 rods, to the same height. Farther to the east, north, and south, the chain of hills rises to a height of 1,000 feet, and to the west to 90 feet. The station is equipped with standard maximum and minimum thermometers, furnished by the Weather Bureau, and exposed in a standard shelter attached to the northeast corner of the house. The rain gage is exposed in the open lawn, 25 feet distant from the house and barn, and away from trees. Observations of temperature began in 1880, and precipitation in 1885.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	28	38	63	18	-20	37	22	4.2	11	2.6	3.1	9.8	10.0
January.....	24	34	63	14	-25	33	17	3.8	12	3.1	5.3	14.1	18.0
February.....	25	35	68	15	-18	32	17	4.1	12	3.0	3.9	15.4	12.0
Winter mean.....	26	36	.....	16	.....	.....	.....	12.1	35	8.7	12.3	39.3	.....
March.....	33	44	71	24	-8	42	24	4.7	13	1.8	2.8	11.6	39.0
April.....	46	58	87	34	12	50	40	2.9	12	2.6	3.9	2.3	8.0
May.....	58	69	95	45	22	65	52	3.5	12	2.9	3.7	0.0	0.0
Spring mean.....	46	57	.....	34	.....	.....	.....	11.1	37	7.3	10.4	13.9	.....
June.....	66	77	96	54	35	71	60	3.5	10	1.5	3.3	0.0	0.0
July.....	69	80	96	59	41	77	66	4.9	12	1.8	6.1	0.0	0.0
August.....	68	78	96	57	38	76	62	4.4	10	1.6	10.0	0.0	0.0
Summer mean.....	68	78	.....	57	.....	.....	.....	12.8	32	4.9	19.4	0.0	.....
September.....	62	71	98	50	24	68	57	3.6	8	2.8	3.3	0.0	0.0
October.....	51	60	90	39	16	56	45	4.0	10	3.8	6.0	T.	T.
November.....	39	48	74	29	2	44	33	3.9	10	4.2	7.2	3.5	20.0
Fall mean.....	51	60	.....	39	.....	.....	.....	11.5	28	10.8	16.5	3.5	.....
Annual mean.....	47	58	98	36	-25	.....	.....	47.5	132	31.7	58.6	56.7	39.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 13; Feb. 5, 6, 14, 16, 17, 24, 25, 27; Dec. 28-30.	June 11, 16-18, 23; July 1, 2, 13, 19, 20, 28, 29.	1898	Jan. 2, 4, 28-31; Feb. 2-4; Dec. 13, 14, 16.	June 25; July 3, 4, 30; Aug. 24; Sept. 4.
1895	Jan. 5, 20, 30, 31; Feb. 3, 5-9, 12, 23, 24; Dec. 12, 13, 17.	May 10, 11; June 1, 2; Sept. 23.	1899	Jan. 1, 2, 10-12; Feb. 9-13, 16; Dec. 31.	June 6.
1896	Jan. 5-8, 12, 16; Feb. 17, 18; Dec. 24, 25, 27, 28.	May 10; June 21; July 3; Aug. 5, 8-12.	1900	Jan. 4; Feb. 1-3, 26-28; Dec. 18.	May 15; June 27; July 7, 16-18; Aug. 11, 26.
1897	Jan. 13, 19, 20, 30, 31; Feb. 1, 5, 14; Mar. 1; Dec. 29.	July 6.	1901	Jan. 19, 20; Feb. 23; Dec. 5-7, 19-22.	June 26-30; July 1-3, 14, 16.
			1902	Jan. 1, 20; Dec. 7, 9, 10, 14, 15, 26.	None.
			1903	Jan. 19, 20; Feb. 18-21; Dec. 19, 26, 27, 29, 30.	July 9, 10.

MASSACHUSETTS.

Eastern Section: PLYMOUTH COUNTY. Station: MIDDLEBORO.

A. R. GURNEY, Observer.

[Established January, 1888. Latitude 41° 53' N. Longitude 70° 55' W. Elevation 53 feet.]

The station is located on level ground in the valley of the Nemasket River. The surrounding country is practically level. The instruments are located at the pumping station of the town. The thermometers, of standard make, are exposed in a standard shelter 50 feet from the nearest building and 50 feet east of the river. The rain gage, of the New England Meteorological Society pattern, is exposed in a frame which is 41 feet southwest of the nearest building and 50 feet from the river. The station was established by the present observer, who has made all observations.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 30	° F. 39	° F. 64	° F. 22	° F. -10	° F. 38	° F. 26	In. 3.7	10	In. 1.3	In. 4.1	In. 6.6	In. 9.0	NW.
January.....	27	35	60	18	-23	33	19	4.2	10	4.1	3.9	9.2	16.0	NW.
February.....	27	36	61	18	-12	34	21	4.2	10	2.5	3.6	11.3	14.0	NW.
Winter mean.....	28	37		19				12.1	30	7.9	11.6	27.1		NW.
March.....	35	44	69	27	2	43	30	4.8	13	4.5	5.6	5.8	11.0	NW.
April.....	45	56	86	34	12	47	41	3.4	10	1.4	2.1	T.	3.0	SW.
May.....	55	67	93	44	22	60	48	3.8	10	4.8	5.0	0.0	0.0	SW.
Spring mean.....	45	56		35				12.0	33	10.7	12.7	5.8		SW.
June.....	64	74	94	53	33	67	59	2.8	9	2.8	1.8	0.0	0.0	SW.
July.....	69	79	96	59	41	72	65	3.0	9	1.6	3.8	0.0	0.0	SW.
August.....	67	78	94	57	37	71	62	3.1	8	4.0	5.6	0.0	0.0	SW.
Summer mean.....	67	77		56				8.9	26	8.4	11.2	0.0		SW.
September.....	62	72	94	50	26	65	56	3.8	9	2.5	9.4	0.0	0.0	SW.
October.....	50	60	83	40	19	55	46	4.7	9	1.8	3.6	T.	T.	NW.
November.....	40	50	74	31	1	45	35	4.2	11	7.2	10.2	3.4	10.0	NW.
Fall mean.....	51	61		41				12.7	29	11.5	23.2	3.4		NW.
Annual mean.....	48	58	96	38	-23			45.7	118	38.5	58.7	16.0		NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 6, 17, 24, 25.....	June 11, 17, 23; July 13, 20, 21, 28, 29.	1900	Jan. 3, 4; Feb. 3, 27, 28; Dec. 18.	July 7, 16-18; Aug. 10, 11, 25-27.
1895	Jan. 30; Feb. 6, 7, 9....	June 2; Sept. 21.	1901	Feb. 2, 25; Dec. 19, 20, 22.	June 26, 28, 30; July 1-3.
1896	Jan. 9, 12, 16; Feb. 17, 18; Dec. 4, 25, 28.	Aug. 5, 10-12.	1902	Dec. 9, 10, 15.....	None.
1897	Jan. 20, 30, 31; Feb. 1, 6, 14.	Sept. 10.	1903	Jan. 19, 20; Feb. 18-21; Dec. 19, 27, 29.	June 9, 10.
1898	Jan. 29-31; Feb. 3, 4; Dec. 14.	July 3, 4, 30; Sept. 1-3.			
1899	Jan. 2-11; Feb. 10, 11, 15.	None.			

MASSACHUSETTS.

Southern Section: BRISTOL COUNTY. Station: FALL RIVER.

CLINTON V. S. REMINGTON, Observer.

[Established 1864 by Smithsonian Institution. Latitude, 41° 42'. Longitude, 71° 09'. Elevation, 200 feet.]

This station is in the northern part of the city, being about one-third of a mile from the river and on a street 200 feet above the river. Fall River is situated on the Taunton River and Mount Hope Bay, having a length of 10 to 11 miles with a width of about 2 miles. The city rises abruptly from the river to a height of 128 feet in the center, and to a height of 250 feet in the northern and southern extremities. The thermometers are exposed 10 feet above the ground in a Government shelter on the north side of the house, about 20 feet above the level of the street, or 220 feet above the river. The instrumental equipment consists of a barometer, anemometer, and a rain gage, in addition to the thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1886, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	33	39	61	27	- 7	40	29	4.2	7	2.4	8.4	9.4
January.....	25	28	60	22	-10	32	21	4.7	10	5.9	2.7	10.4
February.....	28	34	57	22	-10	33	24	4.6	7	5.5	5.7	13.1
Winter mean.....	29	34		24				13.5	24	13.8	16.8	32.9
March.....	38	45	65	31	7	44	32	5.2	8	3.9	5.0	7.5
April.....	47	55	84	39	21	49	44	3.9	7	1.0	5.3	3.4
May.....	58	66	94	49	32	62	55	4.4	7	3.5	2.9	0.0
Spring mean.....	48	55		40				13.5	22	8.4	13.2	10.9
June.....	62	73	96	52	43	69	60	2.6	6	1.7	6.2	0.0
July.....	71	78	94	64	51	73	68	3.3	6	0.7	6.1	0.0
August.....	70	76	94	63	49	72	66	4.0	6	3.0	4.9	0.0
Summer mean.....	68	76		60				9.9	18	5.4	17.2	0.0
September.....	64	71	94	56	40	66	59	3.6	5	4.1	5.5	0.0
October.....	54	61	83	47	29	58	50	4.7	5	1.5	8.3	0.1
November.....	43	49	69	37	12	47	38	4.3	6	6.8	2.6	2.9
Fall mean.....	54	60		47				12.6	16	12.4	16.4	3.0
Annual mean.....	49	56	96	42	-10			49.5	80	40.0	63.6	46.8

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 11, 17; July 20, 29.	1899	Jan. 2; Feb. 10, 11....	June 6.
1895	Feb. 6.....	May 31; June 2; Sept. 21-23.	1900	Feb. 27.....	July 7, 16; Aug. 9-11, 27.
1896	Jan. 6, 7; Feb. 17.....	July 12; Aug. 8-12.	1901	Jan. 19, 20.....	June 30.
1897	None.....	Sept. 10.	1902	Dec. 9.....	July 2, 3.
1898	Jan. 30.....	July 3, 4; Sept. 1-3.	1903	Jan. 19.....	July 9.

MASSACHUSETTS.

Southern Section: BRISTOL COUNTY. Station: NEW BEDFORD.

THOMAS R. RODMAN, Observer.

[Established 1873. Latitude, 41° 39'. Longitude, 71° 56'. Elevation, 100 feet.]

New Bedford is in the southeastern part of Massachusetts, on the west side of the Acushnet River, an arm of the sea which runs up from Buzzards Bay. At the mouth of Buzzards Bay is the Atlantic Ocean, distant from New Bedford, across the land, about 12 miles. The country about New Bedford is gently rolling and nowhere in its vicinity reaches a greater altitude than 150 feet.

The house of the observer, where the meteorological instruments are located, is in the southwest part of the city, and is distant about half a mile from the river. No building is nearer to its main body than 40 feet. The nearest houses have spacious yards or extensive grounds.

The maximum and minimum thermometers are affixed to a blind on the west side of the house, which is permanently closed, and are covered by a box open at the bottom and on the blind side so that the air can circulate freely. Their position is 18 inches higher than that of the other thermometers. The rain gage stands in a framework which is distant from the nearest obstruction, a one-story wing of a house, about 35 feet. The top of the gage is about 2 feet 8 inches from the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	32	40	61	24	-10	39	24	4.0	10	3.0	2.2	10.0	12.0	NW.
January.....	28	36	62	20	-11	37	20	4.4	10	5.2	5.8	10.3	10.0	NW.
February.....	28	36	60	21	-10	34	20	4.3	9	2.8	5.3	13.2	18.0	NW.
Winter mean.....	29	37		22				12.7	29	11.0	13.3	33.5		NW.
March.....	34	43	63	28	2	41	28	5.1	10	1.5	3.5	4.8	12.0	NW.
April.....	44	54	80	36	18	49	38	4.0	9	2.7	5.3	2.4	11.0	SW.
May.....	55	64	93	46	32	60	49	3.9	10	3.2	6.8	0.0	0.0	SW.
Spring mean.....	44	54		37				13.0	29	7.4	15.6	7.2		SW.
June.....	64	72	93	55	41	67	58	2.8	7	4.1	0.9	0.0	0.0	SW.
July.....	69	77	93	61	50	73	66	3.4	9	1.2	6.0	0.0	0.0	SW.
August.....	68	76	93	61	45	71	63	4.0	9	4.2	7.7	0.0	0.0	SW.
Summer mean.....	67	75		59				10.2	25	9.5	14.6	0.0		SW.
September.....	62	70	94	54	34	66	58	3.4	7	1.8	1.3	0.0	0.0	SW.
October.....	52	60	83	44	24	57	47	4.2	8	4.0	9.8	0.0	11.1	SW.
November.....	41	50	73	34	2	46	35	4.4	9	3.2	8.0	2.9	18.0	NW.
Fall mean.....	52	60		44				12.0	24	9.0	19.1	2.9		SW.
Annual mean.....	48	56	94	40	-11			47.9	107	36.9	62.6	43.6	18.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 11.	1899	Jan. 2, 11; Feb. 9-11..	June 6.
1895	Feb. 5, 6, 8, 9.....	May 31; June 2.	1900	None.....	Aug. 11.
1896	Jan. 6, 7; Feb. 17.....	May 10.	1901	Jan. 19, 20.....	July 3.
1897	None.....	Sept. 11.	1902	Dec. 9.....	None.
1898	Jan. 30.....	July 3; Sept. 3.	1903	Jan. 19; Dec. 27.....	Do.

. MASSACHUSETTS.

Southeastern Section: BARNSTABLE COUNTY. Station: HYANNIS.

CHARLES F. SLEEPER, Observer.

[Established 1892. Latitude, 41° 39' N. Longitude, 70° 17' W. Elevation, 31 feet.]

The station at Hyannis was opened January 1, 1892, by the present observer, Mr. Charles F. Sleeper. Hyannis is in the northeast corner of the county of Barnstable, and at the narrowest part of Cape Cod, between Massachusetts Bay and Nantucket Sound. The land for miles east and west is low, perhaps 30 to 40 feet above the sea. About 3 miles from the shore to the north is the "backbone," as it is called, a ridge of hills perhaps from 100 to 150 feet in height. The distance from bay to sound is about 4½ miles, and between the shore villages it is thickly wooded. The instrumental equipment consists of a standard exposed thermometer and a standard rain gage furnished by the Weather Bureau. The thermometer is exposed in a lattice-work shelter in a window on the north side of the residence of the observer, the rain gage in a yard 27 feet from the nearest shed or other building.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	39	64	28	- 8	39	29	4.1	11	3.8	2.6	6.2	10.0	NW.
January.....	30	36	55	24	- 8	34	27	3.7	11	3.1	4.8	7.9	7.0	NW.
February.....	30	36	54	24	- 4	33	24	3.5	9	1.4	4.3	12.8	23.0	NW.
Winter mean.....	31	37	.....	25	.....	.....	.....	11.3	31	8.3	11.7	26.9	.....	NW.
March.....	38	43	63	32	9	42	33	5.2	11	4.2	3.7	6.6	10.0	NW.
April.....	46	52	77	40	21	49	42	3.6	10	1.7	5.8	1.2	3.5	SW.
May.....	57	64	92	50	32	60	52	3.7	10	3.6	6.4	0.0	0.0	SW.
Spring mean.....	47	53	.....	41	.....	.....	.....	12.5	31	9.5	15.9	7.8	.....	SW.
June.....	66	72	97	59	45	69	60	2.5	9	1.0	1.2	0.0	0.0	SW.
July.....	72	79	94	65	47	75	66	2.7	9	2.9	3.9	0.0	0.0	SW.
August.....	70	78	96	63	30	74	63	3.0	9	3.9	4.5	0.0	0.0	SW.
Summer mean.....	69	76	.....	62	.....	.....	.....	8.2	27	7.8	9.6	0.0	.....	SW.
September.....	64	71	94	57	40	68	61	2.6	8	1.2	0.8	0.0	0.0	SW.
October.....	54	60	81	48	30	56	52	3.8	8	2.8	6.6	T.	0.2	SW.
November.....	44	50	69	38	11	49	38	4.7	10	4.4	8.4	3.4	11.0	NW.
Fall mean.....	54	60	.....	48	.....	.....	.....	11.1	26	8.4	15.8	3.4	.....	SW.
Annual mean.....	50	57	97	44	- 8	.....	.....	43.1	115	34.0	53.0	38.1	23.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	No data.....	No data.	1899	Jan. 2; Feb. 10, 11....	None.
1895	.....do.....	Do.	1900	Feb. 27.....	July 7, 16; Aug. 11.
1896	Jan. 6; Feb. 17.....	July 12; Aug. 10-13.	1901	Jan. 20.....	July 1.
1897	None.....	Sept. 10.	1902	Dec. 9.....	None.
1898	.....do.....	None.	1903	Jan. 19.....	July 9.

MASSACHUSETTS.

Southeastern Section: BARNSTABLE COUNTY. Station: PROVINCETOWN.

GIDEON BOWLEY, Observer.

[Established 1885. Latitude, 42° 2' N. Longitude, 70° 7' W. Elevation, 15 feet.]

The station is in the village of Provincetown, Mass., which is located in the sand dunes of Cape Cod and near the northern extremity of the cape, so that it is surrounded on all sides by miles of open ocean. The station is equipped with standard thermometers, rain gage, and instrument shelter, the property of the Weather Bureau. The shelter is on four posts, 4 feet from the ground, and in an open sodded yard 25 feet from any building. The rain gage is exposed on the ground in an open lot, 50 feet north of the instrument shelter, with top of the gage 2 feet from the ground. Record much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	35	41	68	28	- 2	40	31	3.7	10	1.7	7.6	4.7	6.0
January.....	30	37	56	23	- 2	36	23	3.6	10	3.4	3.2	7.8	6.0
February.....	29	37	55	23	-13	35	22	3.2	8	1.9	0.7	8.0	11.0
Winter mean.....	31	38		25				10.5	28	7.0	11.5	20.5	
March.....	36	43	64	30	11	42	27	4.1	10	3.6	5.4	5.9	4.0
April.....	45	53	78	37	19	50	42	2.9	9	1.4	5.3	1.6	1.5
May.....	54	62	90	47	55	58	51	3.3	8	3.6	10.5	0.0	0.0
Spring mean.....	45	53		38				10.3	27	8.6	21.2	7.5	
June.....	64	73	94	56	39	67	60	2.7	8	2.1	1.8	0.0	0.0
July.....	70	78	104	62	49	73	67	2.9	8	1.3	3.8	0.0	0.0
August.....	69	77	94	62	45	72	64	3.2	6	3.7	2.4	0.0	0.0
Summer mean.....	68	76		60				8.8	22	7.1	8.0	0.0	
September.....	64	72	93	56	36	66	59	3.3	6	2.2	3.4	0.0	0.0
October.....	53	60	82	47	26	58	48	4.2	7	2.4	1.2	0.0	0.0
November.....	44	50	72	38	18	48	39	3.6	8	5.8	3.4	1.3	3.5
Fall mean.....	54	61		47				11.1	21	10.4	7.0	1.3	
Annual mean.....	49	57	104	42	-13			40.7	98	33.1	47.7	29.3	11.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24.....	June 11, 23; July 20, 29. May 31.	1900	Feb. 27.....	July 4; Aug. 11, 26, 28.
1895	Feb. 6.....		1901	.....	June 27; July 1, 2, 4; Aug. 12, 18; Sept. 6-8.
1896	No record.....		1902	Dec. 9.....	July 14.
1897	.....do.....		1903	Jan. 19.....	July 9.
1898	.....			
1899	.....			

MASSACHUSETTS.

Southeastern District: NANTUCKET COUNTY. Station: NANTUCKET.

GEORGE E. GRIMES, Observer.

[Established by Signal Service October 18, 1886. Latitude, 41° 17' N. Longitude, 70° 6' W. Elevation, 8 feet.]

This station is situated on the eastern side of the town of Nantucket, near the harbor front. The town of Nantucket lies along the shore on the eastern side of the island of Nantucket and about midway between the two ends of the island. The nearest point of the mainland is Monomoy Point, a distance of 24 miles from Nantucket bar. The highest land in the town, corner of Pine and Charter streets, is 60 feet above sea level. The highest point of land on the island, Sankaty Bluffs, is 108 feet above sea level.

The climate is insular, with cool, pleasant summers and short, severe winters. During January and February the island is frequently cut off from communication by steamers, owing to the large fields of ice that block the chord of the bay and harbor. During severe weather the ice has been packed 8 to 9 feet on Nantucket bar.

The Gulf Stream lies 50 miles south by east from the island, but no influence of the warm current is effectually felt on the island in winter.

The thermometers are exposed in a shelter 10 feet above the roof and 43 feet above the ground.

The rain gage is also on the roof of the office, the top being 4½ feet above the roof, 38 feet above the ground, and about 30 feet from the branches of a large elm tree.

Tabulated data are from the following periods of observation: Humidity, fifteen years. Remainder of data is from the full period, seventeen years, December 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	36	42	59	31	- 1	41	31	3.5	14	1.1	2.1	5.5	7.0	80	1.97	79	2.01	NW.
January.....	32	38	57	26	- 4	36	24	3.1	13	2.7	5.0	5.5	6.7	79	1.67	78	1.71	NW.
February.....	31	36	55	25	- 1	36	25	2.9	13	4.5	4.2	8.8	10.0	78	1.51	79	1.60	NW.
Winter mean.....	33	39	.....	27	.....	.....	.....	9.5	40	8.3	11.3	19.8	.....	79	1.72	79	1.77	NW.
March.....	36	41	59	31	6	42	32	4.0	14	5.7	5.5	4.9	8.0	80	1.89	82	2.02	NW.
April.....	44	49	73	38	22	46	42	2.8	11	1.5	4.0	0.5	4.8	80	2.54	83	2.64	SW.
May.....	53	58	86	47	35	55	50	2.7	11	0.8	2.3	0.0	0.0	81	3.80	86	3.76	SW.
Spring mean.....	44	49	.....	39	.....	.....	.....	9.5	36	8.0	11.8	5.4	.....	80	2.74	84	2.81	SW.
June.....	61	67	89	55	43	64	58	2.2	10	2.1	3.4	0.0	0.0	84	5.33	88	4.89	SW.
July.....	67	74	87	62	48	70	64	2.4	9	2.0	2.9	0.0	0.0	84	6.28	88	5.97	SW.
August.....	68	73	87	62	49	71	64	2.9	8	2.1	11.0	0.0	0.0	84	6.49	88	6.17	SW.
Summer mean.....	65	71	.....	60	.....	.....	.....	7.5	27	6.2	17.3	0.0	.....	84	6.03	88	5.68	SW.
September.....	63	68	86	58	41	65	60	2.7	11	1.9	3.1	0.0	0.0	80	5.08	84	5.16	SW.
October.....	54	58	75	49	34	57	49	3.8	11	3.1	6.6	T.	T.	80	3.75	81	3.80	NE.
November.....	45	50	66	40	15	49	40	3.5	13	1.5	7.8	0.9	4.3	80	2.73	81	2.73	NW.
Fall mean.....	54	59	.....	49	.....	.....	.....	10.0	33	6.5	17.5	0.9	.....	80	3.85	82	3.90	NW.
Annual mean.....	49	54	89	44	- 4	.....	.....	36.5	136	29.0	57.9	26.1	10.0	81	3.59	83	3.54	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 85° or above.	Year.	Minimum below 0°.	Maximum 85° or above.
1895	None.....	May 31; June 2; Sept. 22.	1900	Feb. 27.....	Aug. 11.
1896	Feb. 17.....	Aug. 10.	1901	None.....	July 1, 2.
1897	None.....	None.	1902	Dec. 9.....	None.
1898	None.....	Sept. 2.	1903	None.....	July 9, 10.
1899	None.....	None.			

RHODE ISLAND.

Central Section: PROVIDENCE COUNTY. Station: PROVIDENCE.

CITY ENGINEER, Observer.

[Established, 1880. Latitude, 41° 50' N. Longitude, 71° 25' W. Elevation, 74 feet.]

The meteorological records for Providence, R. I., have been kept by the city engineer since 1880. This department began keeping the record of rainfall in 1877; previous to that Dr. Alexis Caswell, of Brown University, had made a record of rainfall, commencing in 1832. Besides the above the various records began as follows: Maximum and minimum temperature in 1880; recording thermometer in 1884; and have been kept continuously since the above dates.

The temperature readings are made at the city hall. The thermometers (standard and self-recording) are kept in a slatted cage just outside of a recessed window on the north side of the city hall and about 75 feet above sea level.

The rain gage is located on the lawn and about 136 feet above sea level at Hope Reservoir and High-Service Pumping Station, about a mile northeast from the city hall. The rainfall is taken at three other stations, but this station furnishes the records published.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1885, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.					
	Mean.	Mean of the max-ima.	Absolute maximum.	Mean of the min-ima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
December.....	° F. 33	° F. 40	° F. 64	° F. 25	° F. - 6	° F. 41	° F. 26	In. 4.0	9	In. 1.5	In. .5	In. 8.0	In. 12.0
January.....	28	36	64	21	- 8	36	19	4.7	10	5.1	6.0	12.7	17.0
February.....	28	36	65	21	- 9	35	24	5.2	9	1.7	6.4	14.3	23.0
Winter mean.....	30	37		22				13.9	28	8.3	14.9	35.0	
March.....	36	44	71	29	4	47	28	5.0	10	4.4	2.9	6.9	11.0
April.....	48	56	88	39	22	51	44	3.8	9	1.4	6.1	1.7	9.0
May.....	60	59	94	50	34	63	56	4.1	10	6.1	4.1	0.0	0.0
Spring mean.....	48	53		39				12.9	29	11.9	13.1	8.6	
June.....	68	77	98	58	46	72	62	3.3	8	2.9	1.2	0.0	0.0
July.....	75	83	102	67	50	78	70	3.8	9	1.9	10.3	0.0	0.0
August.....	72	81	99	62	48	75	66	4.0	8	3.1	6.0	0.0	0.0
Summer mean.....	72	80		62				11.1	25	7.9	17.5	0.0	0.0
September.....	64	73	94	56	34	68	59	3.9	8	1.8	2.3	0.0	0.0
October.....	52	60	86	44	20	57	47	4.4	8	1.4	8.4	T.	T.
November.....	42	50	72	35	11	47	38	4.1	9	6.1	7.3	3.4	12.0
Fall mean.....	53	61		45				12.4	25	9.3	18.0	3.4	
Annual mean.....	50	58	102	42	- 9			50.3	107	37.4	63.5	47.0	23.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 11, 16, 17, 22, 23; July 1, 2, 13, 19-21, 25, 28-30.	1899	Jan. 2; Feb. 10, 11....	July 3, 4, 15, 27; Aug. 5, 6.
1895	Feb. 5, 6.....	June 1, 2; July 21, 22.	1900	Feb. 27.....	May 15; June 27; July 7, 8, 16-18, 23, 31; Aug. 6, 9-11, 25-27, 30; Sept. 6.
1896	Jan. 6, 7; Feb. 17.....	May 10; June 21; July 12, 13; Aug. 4-12.	1901	Jan. 19, 20.....	June 25-30; July 1-4, 7, 14-16, 18, 19, 21-24, 30; Aug. 11.
1897	None.....	June 25; July 5, 8, 9, 17; Sept. 9, 10.	1902	Dec. 9.....	May 23; June 3; July 9, 13, 14; Aug. 4.
1898	Feb. 4.....	July 1, 3, 4, 29, 30; Aug. 2, 4, 7, 8, 24, 31; Sept. 1-6.	1903	None.....	May 18-20; July 2, 8-12, 25, 30.

RHODE ISLAND.

South Coast: WASHINGTON COUNTY. Station: NARRAGANSETT PIER.

Mrs. M. E. CONWAY, Observer.

[Established by Signal Service in July, 1880. Latitude, 41° 19' N. Longitude, 71° 17'. Elevation, 33 feet.]

This station was first located in the building of the United States Life-Saving Service, on the northern end of the bathing beach. As there was no private room for the office in this building during the winter months, the office was moved every fall to a cottage about 1 mile south of the beach and on the ocean front. In April, 1885, the office was located in a two-story building on Kingston street, a little north of the center of the village and about three blocks west of the ocean, on level land, there being no hills or high buildings in its vicinity. The thermometers were exposed in a slat window shelter on the north side of the building and the rain gage was 30 feet west of the shelter. In 1900 a new sod shelter was erected about 35 feet northeast of the building and 9 feet above the ground, and the instruments were exposed in it.

Tabulated data for period from January 1, 1892, to December 31, 1903, except frost data, record for which extends back to 1883.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days, with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	32	40	58	25	- 5	35	28	3.9	10	2.2	2.6	4.4	8.0	NW.
January.....	28	37	58	20	-11	31	20	4.7	11	4.2	4.9	7.6	10.0	NW.
February.....	28	36	56	20	-12	31	23	4.6	■	5.5	7.4	12.8	12.0	NW.
Winter mean.....	29	38	.....	22	.....	.....	.....	13.2	30	11.9	14.9	24.8	.....	NW.
March.....	36	44	65	29	9	42	32	5.0	12	4.3	3.8	5.9	8.0	SW.
April.....	45	53	84	38	12	46	42	3.8	10	3.2	5.1	0.6	3.0	SW.
May.....	55	63	92	47	28	58	53	4.0	10	4.2	9.0	0.0	0.0	SW.
Spring mean.....	45	53	.....	38	.....	.....	.....	12.8	32	11.7	17.9	6.5	.....	SW.
June.....	65	72	92	56	40	70	58	2.5	9	0.8	0.1	0.0	0.0	SW.
July.....	70	78	94	62	42	72	67	3.3	10	2.2	3.5	0.0	0.0	SW.
August.....	69	76	90	61	41	71	64	3.9	7	1.0	3.7	0.0	0.0	SW.
Summer mean.....	68	75	.....	60	.....	.....	.....	9.7	26	4.0	7.3	0.0	.....	SW.
September.....	63	71	90	55	33	65	59	3.2	8	2.8	2.0	0.0	0.0	S.
October.....	52	60	82	45	24	57	48	4.4	8	3.3	9.2	0.0	0.0	SW.
November.....	42	51	71	34	6	47	37	4.1	11	3.6	6.8	3.3	10.0	NW.
Fall mean.....	52	61	.....	45	.....	.....	.....	11.7	27	9.7	18.0	3.3	.....	SW.
Annual mean.....	49	57	94	41	-12	.....	.....	47.4	115	37.3	58.1	34.6	12.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1892, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1892	Jan. 27.....	July 26.	1898	Jan. 30; Feb. 2, 4; Dec. 14.	Sept. 1, 3.
1893	Jan. 11, 16, 17, 21; Feb. 2; Dec. 14.	June 20.	1899	Jan. 2, 11; Feb. 9-12...	June 6.
1894	Jan. 13; Feb. 6, 24, 25.	June 23.	1900	Feb. 27.....	July 4, 7; Aug. 11.
1895	Feb. 5-9.....	May 31; June 2.	1901	Jan. 20.....	July 1.
1896	Jan. 6; Feb. 17, 18; Dec. 25.	May 10.	1902	Dec. 9, 10.....	None.
1897	None.....	Sept. 11.	1903	Feb. 18.....	July 2, 8, 9.

RHODE ISLAND.

South Coast: WASHINGTON COUNTY. Station: KINGSTON.

NATHANIEL HELME, Observer.

[Established 1890. Latitude, 41° 29' N. Longitude, 71° 32' W. Elevation, 250 feet.]

This station is in the village of Kingston, Washington County, and is on the apex of Kingston Hill, about 8 miles in a direct line from the Atlantic Ocean and 6 miles from Narragansett Bay. On the east, south, and west the land slopes to a lower level, with a broad plain on the west. To the east and south there are other hills of lower elevation than this, with narrow valleys between. On the north the land rises to an elevation of about 50 feet more than that of the station. The dry and wet bulb and maximum and minimum thermometers are exposed in a standard shelter. The thermometers are about 6 feet above the ground. The nearest building is a two-story barn to the east, about 20 feet away, and a water tower, 65 feet in height, about the same distance north. The rain gage stands in an open space; the nearest building about 30 feet distant. The top of the gage is 2 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maximum.	Mean of the min-ima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	39	61	22	-12	39	26	4.6	10	1.9	2.7	8.0	11.0	W.
January.....	28	36	61	19	-10	34	19	4.8	11	5.6	6.8	10.0	20.0	W.
February.....	27	36	63	19	-11	34	22	5.2	10	1.9	8.1	14.0	15.0	W.
Winter mean.....	28	37		20				14.6	31	9.4	17.6	32.0		W.
March.....	35	44	68	28	3	43	29	6.4	11	5.2	3.7	8.0	7.0	W.
April.....	45	55	85	35	17	47	43	4.8	9	3.4	5.6	2.0	8.0	SW.
May.....	55	65	93	45	27	58	53	4.3	10	5.4	9.0	0.1	1.0	SW.
Spring mean.....	45	55		36				15.5	30	14.0	18.3	10.1		SW.
June.....	64	74	95	54	38	67	58	2.9	9	2.2	0.8	0.0	0.0	SW.
July.....	70	79	95	60	47	72	66	3.4	10	2.8	7.1	0.0	0.0	SW.
August.....	68	78	97	59	42	71	64	3.8	9	3.2	6.8	0.0	0.0	SW.
Summer mean.....	67	77		58				10.1	28	8.2	14.7	0.0	0.0	SW.
September.....	62	73	94	52	32	66	58	3.5	8	2.6	2.1	0.0	0.0	W.
October.....	51	61	83	42	22	55	47	5.1	9	1.5	12.0	0.0	0.0	W.
November.....	41	50	78	32	4	45	36	4.4	10	7.0	7.4	5.0	11.0	W.
Fall mean.....	51	61		42				13.0	27	11.1	21.5	5.0		W.
Annual mean.....	48	58	97	38	-12			53.2	116	42.7	72.1	47.1	20.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 11, 17, 23; July 13, 20, 29.	1900	Feb. 27.....	May 15; July 7, 8, 11, 17, 18; Aug. 6, 9-11, 25-27.
1895	Feb. 5-9.....	May 31; June 2; Sept. 21-23.	1901	Jan. 19, 20; Dec. 22.....	June 28, 30; July 1-3.
1896	Jan. 6, 7; Feb. 17, 18..	May 10; Aug. 8, 10-12.	1902	Jan. 4; Dec. 9, 10.....	July 9; Aug. 4.
1897	None.	Sept. 10.	1903	Jan. 19; Feb. 18-20; Dec. 27, 29.	May 20; July 2, 9-11.
1898	Jan. 30; Feb. 2; Dec. 14.	July 1, 3, 4, 30; Sept. 1-3.			
1899	Jan. 1, 2, 11; Feb. 9-12; Dec. 31.	June 6, 8.			

RHODE ISLAND.

Coast District: NEWPORT COUNTY. Station: BLOCK ISLAND.

W. L. DAY, Observer.

[Established by Signal Service, September 1, 1880. Latitude, 41° 10' N. Longitude, 71° 36' W. Elevation, 21 feet.]

From the establishment of the station until November 1, 1887, the office was located in a room adjacent to J. T. Dodge's store in the village of Block Island. From November 1, 1887, to July 17, 1902, the office was in a building built especially for the purpose, on Main street. The thermometers were exposed in a standard shelter on the roof, 39 feet above ground, until October 5, 1898, when they were removed to a ground exposure 11 feet above ground. The rain gage was on the roof, 33 feet above ground, until April 1, 1891, when it was given a ground exposure in a vacant lot, its top being 3 feet above ground. The anemometer was on the office roof or tower, 40 feet above ground, until August 25, 1899, when it was placed on the National Hotel cupola, 70 feet above ground. The office was destroyed by fire July 17, 1902, nearly all records and instruments being saved. A temporary location was secured in the Island drug store, where the office remained until January 1, 1904, when it was moved to the new Weather Bureau building on Beach avenue.

The thermometers have a sod exposure 40 feet from the office building and 11 feet above ground. The rain gages are located 60 feet northeast of the office building and are 3 feet above ground. The anemometer is on the roof of the building, its cups being 46 feet above the ground.

The frost data are taken from temperatures of 32° or lower, frost being infrequent at this station.

Tabulated data are from the following periods of observation: Snowfall, eleven years, 1893-1903; humidity, fifteen years, 1889-1903; remainder from full period.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	36	42	60	30	- 3	42	31	3.7	12	1.2	6.6	4.0	8.5	75	1.84	74	1.89	NW.
January.....	31	37	59	25	- 4	37	24	4.1	13	2.1	6.4	6.1	9.6	76	1.54	75	1.58	NW.
February.....	31	36	58	25	- 4	37	25	4.4	11	1.1	7.3	7.2	10.6	75	1.39	75	1.52	NW.
Winter mean.....	33	38	.....	27	.....	.....	.....	12.2	36	4.4	20.3	17.3	.....	75	1.59	75	1.66	NW.
March.....	36	41	59	30	6	47	30	4.6	13	2.8	6.4	4.8	5.0	78	1.78	80	1.97	NW.
April.....	44	50	72	38	25	47	41	3.7	11	1.4	4.1	1.2	3.8	80	2.45	82	2.70	SW.
May.....	52	58	82	47	31	56	49	3.8	12	3.5	6.4	0.0	0.0	84	3.67	86	3.76	SW.
Spring mean.....	44	50	.....	38	.....	.....	.....	12.1	36	7.7	16.9	6.0	.....	81	2.63	83	2.81	SW.
June.....	62	68	86	56	45	65	58	2.7	9	0.6	2.6	0.0	0.0	86	5.28	88	5.23	SW.
July.....	68	74	88	63	52	72	65	3.3	10	1.0	6.5	0.0	0.0	86	6.43	88	6.37	SW.
August.....	68	73	89	63	49	71	65	3.4	9	1.3	6.4	0.0	0.0	86	6.43	88	6.58	SW.
Summer mean.....	66	72	.....	61	.....	.....	.....	9.4	28	2.9	15.5	0.0	.....	86	6.05	88	6.06	SW.
September.....	64	69	86	59	42	66	61	3.3	10	5.5	0.6	0.0	0.0	83	5.27	84	5.51	SW.
October.....	54	59	75	49	33	57	50	4.2	10	2.4	3.9	0.0	0.0	80	3.62	79	3.70	NE.
November.....	40	50	70	40	14	50	39	4.1	12	4.2	5.9	0.8	6.0	78	2.57	78	2.66	NW.
Fall mean.....	55	59	.....	49	.....	.....	.....	11.6	32	12.1	10.4	0.8	.....	80	3.82	80	3.36	NW.
Annual mean.....	49	55	89	44	- 4	.....	.....	45.3	132	27.1	63.1	24.1	10.6	81	3.52	81	3.92	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 85° or above.	Year.	Minimum below 0°.	Maximum 85° or above.
1894	Feb. 24.....	June 23.	1899	Feb. 11.....	None.
1895	Feb. 6, 9.....	Sept. 21.	1900	None.....	Aug. 9-11, 27.
1896	Jan. 6; Feb. 17.....	Aug. 10-12.	1901	.....do.....	June 30; July 3.
1897	None.....	Sept. 11.	1902	Dec. 9.....	None.
1898	.....do.....	None.	1903	None.....	July 9, 10.

CONNECTICUT.

Northeastern Section: TOLLAND COUNTY. Station: STORRS.

W. A. STOCKING, Jr., Observer.

[Established June, 1888. Latitude, 41° 48' N. Longitude, 72° 10' W. Elevation, 640 feet.]

It is located on the campus of the Connecticut Agricultural College and the Storrs Experiment Station, on a prominent rise of ground sloping off to the Willimantic River, 3 miles to the west, and to the Fenton River, 1 mile to the east. The thermometer shelter is located 5 feet west of the nearest building. The thermometers are 5½ feet above the surface of the ground. The station is equipped with standard wet and dry bulb thermometers, maximum and minimum self-registering thermometers. The rain gage is located 140 feet north of the thermometer shelter, 70 feet west of the nearest building, with the top 2 feet above the surface of the ground. Observations are taken at 7 a. m., 2 p. m., and 9 p. m. each day.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	30	37	63	20	- 9	33	23	4.2	11	4.3	9.6	8.9	10.0	NW.
January.....	24	33	56	16	-13	28	17	3.3	10	2.2	2.2	10.2	12.0	NW.
February.....	24	32	57	16	-13	28	19	4.3	9	3.1	1.0	14.1	16.0	SW.
Winter mean.....	26	34	.....	17	.....	.....	.....	11.8	30	9.6	12.8	33.2	.....	NW.
March.....	36	45	70	26	2	43	29	5.0	11	1.2	7.2	4.6	5.5	NW.
April.....	46	56	85	35	15	48	42	3.6	9	2.7	9.5	2.0	5.0	NW.
May.....	56	68	90	45	25	60	54	3.5	10	3.6	6.3	0.0	0.0	SW.
Spring mean.....	46	56	.....	35	.....	.....	.....	12.1	30	7.5	23.0	6.6	.....	NW.
June.....	64	75	92	54	39	68	59	3.1	9	0.6	2.0	0.0	0.0	SW.
July.....	69	79	96	60	45	72	65	5.0	11	2.1	5.5	0.0	0.0	SW.
August.....	68	77	93	58	42	70	62	3.9	8	2.4	7.6	0.0	0.0	SW.
Summer mean.....	67	77	.....	57	.....	.....	.....	12.0	28	5.1	15.1	0.0	.....	SW.
September.....	61	71	93	51	32	64	50	3.4	8	3.0	4.3	0.0	0.0	NW.
October.....	50	60	86	41	20	54	45	3.9	8	4.2	2.0	0.0	0.0	NW.
November.....	38	47	70	30	5	44	34	4.0	9	4.0	3.0	3.3	12.0	NW.
Fall mean.....	50	59	.....	41	.....	.....	.....	11.3	25	11.2	9.3	3.3	.....	NW.
Annual mean.....	47	57	96	38	-13	.....	.....	47.2	113	33.4	60.2	43.1	16.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	No data for February.	June 17; no data for July.	1900	Feb. 2, 27, 28.....	May 15; July 7, 16-18; Aug. 6, 10, 11, 26; Sept. 6.
1895	.....do.....	June 2; no data for September.	1901	Jan. 19, 20; Dec. 22...	June 26, 28, 30; July 1, 2.
1896	Jan. 6, 7; Feb. 17, 18.	May 10; Aug. 10-13.	1902	Jan. 4, 18; Dec. 9, 10, 23.	None.
1897	Jan. 19, 20, 26; Dec. 28, 29.	None.	1903	Jan. 13, 18, 24; Feb. 18, 19; Dec. 27, 29.	July 9, 10.
1898	Jan. 2, 4, 30, 31; Feb. 2-4; Dec. 13, 14.	July 3, 4, 30; Sept. 1, 2.			
1899	Jan. 2, 10, 11; Feb. 9-11; Dec. 31.	June 6.			

CONNECTICUT.

Northern Section: HARTFORD COUNTY. Station: SOUTHTON.

LUMAN ANDREWS, Observer.

[Latitude, 41° 35' N. Longitude, 72° 21' W. Elevation, 140 feet.]

The station was established April 1, 1870, by the Smithsonian Institution, with location in the eastern part of the town, in a hilly farming district, elevation 340 feet. The instrument shelter consisted of a box 4 by 12 inches, with glass front, attached to trunk of a large tree. For the first year a common thermometer was used, then a James Green standard was purchased, and to-day it compares perfectly with the standard instrument furnished by the Government. The original rain gage was a tin tube, 12 inches long and 2½ inches in diameter, supplied by the Smithsonian Institution. The first exposure was on the ground, but four years later it was removed to the roof of the greenhouse. On August 19, 1881, the station was removed 2½ miles directly west to its present location, which is in the borough of Southington, Main street, elevation 140 feet, in the residential section. A Weather Bureau instrument shelter is now in use. It is attached to the north side of the house, 5 feet above ground. On removal of station to present location the rain gage was placed on ridge of barn, but in 1885 was removed to present location on greenhouse. The top of gage is 5½ feet above ground. There is no object higher than the gage within 100 feet except chimney of greenhouse, 55 feet to the northwest.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1873, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December	29	37	60	20	-16	37	22	4.0	11	2.7	2.5	8.2	10.5	NW.
January	25	35	68	18	-19	33	17	3.8	12	2.0	5.6	9.8	16.0	NW.
February	26	36	65	17	-13	34	18	4.0	11	3.8	1.7	11.9	14.5	NW.
Winter mean	27	36	.....	18	.....	.....	.....	11.8	34	9.4	9.8	29.9	.....	NW.
March	34	47	72	29	0	45	26	4.4	13	1.8	1.6	5.9	9.0	NW.
April	46	57	87	36	18	50	38	3.0	10	1.2	4.0	1.0	6.0	SW.
May	58	69	93	46	25	63	52	3.5	10	3.9	3.7	0.0	0.0	SW.
Spring mean	46	58	.....	37	.....	.....	.....	10.9	33	6.9	9.2	6.9	0.0	SW.
June	67	77	96	56	38	70	61	3.0	9	0.4	4.1	0.0	0.0	SW.
July	71	80	96	62	42	76	67	4.5	11	2.7	12.1	0.0	0.0	SW.
August	69	77	96	59	42	74	63	4.6	10	1.7	3.1	0.0	0.0	W.
Summer mean	69	78	.....	59	.....	.....	.....	12.1	30	4.8	19.3	0.0	0.0	SW.
September	62	73	100	53	28	68	57	3.2	9	2.7	4.4	0.0	0.0	NW.
October	51	63	86	44	21	57	45	3.6	9	4.5	4.6	0.1	0.1	NW.
November	36	49	71	31	1	45	32	3.6	11	1.1	7.1	6.3	7.0	NW.
Fall mean	50	62	.....	43	.....	.....	.....	10.4	29	8.3	16.1	6.4	.....	NW.
Annual mean	48	58	100	39	-19	.....	.....	45.2	126	29.4	54.5	43.2	16.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 6, 17, 24, 25	July 1, 13, 20, 28, 29.	1900	Jan. 4; Feb. 27, 28	May 15; July 7, 16-18; Aug. 10, 11; Sept. 6.
1895	Feb. 5, 6, 8, 9	June 1, 2.			
1896	Jan. 6, 8, 12; Feb. 17, 18; Mar. 14; Dec. 27.	Aug. 5, 9-12.	1901	Jan. 20; Feb. 2; Dec. 19, 22.	June 28-30; July 1-3.
1897	Jan. 31; Feb. 1, 5, 14; Dec. 29.	None.	1902	Jan. 31; Dec. 9, 10, 15, 28.	None.
1898	Jan. 30, 31; Feb. 2-4; Dec. 14.	July 3, 4.	1903	Jan. 20; Feb. 18, 20, 21; Dec. 27, 29.	May 20; July 10.
1899	Jan. 2, 11; Feb. 10, 14, 15.	June 6.			

CONNECTICUT.

Central Section: NEW LONDON COUNTY. Station: COLCHESTER.

WILLARD, Observer.

[Latitude, 41° 33'. Longitude, 72° 20' W. Elevation, 370 feet.]

The station is located near the center of the village of Colchester, which is a little northeast of the center of the town and in the northwest corner of New London County. The surface of this part of the State is very irregular, broken into low hills and shallow valleys, through which run small brooks. The streams on the south and the west flow into the Connecticut and those on the east into the Thames.

The maximum and the minimum thermometers are located on the northwest corner of the observer's house in a shelter with double roof, no floor, slated sides, and so shaded by large trees that it is little affected by the direct or reflected rays of the sun. The shelter is 2 feet 7 inches wide, 2 feet 8 inches high, 12 inches deep, and 4 feet from the grass. The thermometers are supported on a board 5 inches from the back of the shelter. The rain gage is located in the yard about 25 feet south from the barn and 10 feet west from a small shed and a tree. The top of the gage is about 3 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December	31	40	63	22	-10	39	17	4.3	9	4.1	10.5	12.0	13.0
January	26	35	62	18	-9	34	19	3.8	10	2.4	7.8	11.8	24.0
February	27	36	66	18	-10	33	21	4.1	8	3.2	0.6	14.5	18.0
Winter mean	28	37		19				12.2	27	9.7	18.9	38.3	
March	36	45	72	27	2	45	29	4.8	10	1.6	3.5	6.5	8.0
April	46	57	87	36	18	49	43	4.1	8	4.6	9.6	2.0	8.0
May	56	67	91	46	26	61	54	4.2	10	4.0	7.3	T.	T.
Spring mean	46	56		36				13.1	28	10.2	20.4	8.5	
June	66	75	100	58	38	68	59	2.6	8	0.5	2.3	0.0	0.0
July	69	79	98	59	42	73	67	4.3	9	2.5	6.6	0.0	0.0
August	69	78	98	60	42	72	63	4.4	9	1.1	7.8	0.0	0.0
Summer mean	68	77		59				11.3	26	4.1	16.7	0.0	
September	62	72	94	52	28	67	52	3.5	9	3.0	5.5	0.0	0.0
October	48	61	86	36	23	57	46	4.3	7	5.8	2.8	T.	T.
November	43	54	74	32	8	46	38	4.2	9	4.5	2.7	4.7	15.0
Fall mean	51	62		40				12.0	25	13.3	11.0	4.7	
Annual mean	48	58	100	38	-10			48.6	106	37.3	67.0	51.5	24.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 6, 24, 25.....	July 12, 13, 20, 28, 29; June 23.	1899	Jan. 2, 11; Feb. 9-11...	None.
1895	Feb. 5-9	May 31; June 1, 2; Sept. 21-23.	1900	Jan. 4; Feb. 27.....	July 16-18; Aug. 6, 10, 11, 25-27; Sept. 6.
1896	Jan. 6, 7; Feb. 17, 18; Dec. 28.	May 10; Aug. 8, 10-12.	1901	Jan. 19, 20; Dec. 22....	June 26, 28, 30; July 1-3.
1897	None	Sept. 10.	1902	Dec. 9, 10	None.
1898	Jan. 30, 31; Feb. 2, 4; Dec. 14.	July 3, 4, 30; Sept. 1-3.	1903	Jan. 19; Feb. 18-21....	July 9, 10.

CONNECTICUT.

Eastern Section: NEW LONDON COUNTY. Station: VOLUNTOWN.

E. DEWHURST, Observer.

[Latitude, 41° 35' N. Longitude, 71° 50' W. Elevation, 260 feet.]

Voluntown village lies on an open plateau, about 1 mile square. The village, mostly on one side, from east to southwest, is on the Pachong stream, which curves from east around by north, to the southwest. This plateau is surrounded by hills of from 50 to 150 feet in height; one hill, about 2 miles north-northwest, is 200 feet above sea level. To the southwest the country is open. There are no buildings near, and only a few within nearly a mile. The instruments, until a few years ago, were in a latticework shelter in a north window, but for the past few years they have been in a standard shelter, about 15 feet from the southwest corner of the observer's two-story house, and the rain gage 10 feet south of the shelter, with no other buildings in the vicinity, and no trees to interfere with the instruments. The thermometers are exposed 5½ feet above sod, top of rain gage 3 feet above the ground. The thermometers are the standard, furnished by the Weather Bureau; the gage is the property of the observer.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1885, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	30	40	67	21	—14	40	27	3.9	9	1.6	10.1	5.5	8.0
January.....	28	37	62	17	—18	35	20	4.8	9	5.8	2.2	8.8	14.0
February.....	28	37	59	18	—16	35	19	4.8	12	1.2	1.2	9.0	20.0
Winter mean.....	29	38		19				13.5	30	8.6	13.5	23.3	
March.....	36	46	73	27	— 1	44	29	5.3	10	4.3	8.8	9.8	10.0
April.....	46	57	85	36	13	49	44	3.9	8	1.8	9.6	1.3	5.0
May.....	57	68	93	45	24	62	55	3.7	10	4.6	6.1	0.0	0.0
Spring mean.....	46	57		36				12.9	28	10.7	24.5	11.1	
June.....	65	76	102	54	35	68	60	3.0	7	2.0	2.3	0.0	0.0
July.....	68	81	97	55	41	75	67	4.2	9	3.0	4.0	0.0	0.0
August.....	68	79	94	57	39	71	64	4.0	8	3.3	3.3	0.0	0.0
Summer mean.....	67	79		55				11.2	24	8.3	9.6	0.0	
September.....	62	73	92	50	28	65	56	3.5	8	2.8	4.9	0.0	0.0
October.....	56	63	85	49	20	57	46	4.3	7	2.3	1.8	T.	T.
November.....	44	58	73	30	2	46	34	4.6	9	6.5	3.0	4.4	10.0
Fall mean.....	54	65		43				12.4	24	11.6	9.7	4.4	
Annual mean.....	49	60	102	38	—18			50.0	106	59.2	57.3	38.8	20.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 28; Feb. 5, 6, 24, 25.	June 11, 17, 23; July 13, 14, 20, 21, 26, 28, 29.	1900	Jan. 4; Feb. 27, 28; Dec. 18.	July 7, 8, 16-18, 23; Sept. 4, 6.
1895	Jan. 30; Feb. 1, 6, 8, 9.	June 1, 2; Sept. 21-23.	1901	Jan. 19, 20; Feb. 2; Mar. 7; Dec. 19, 20, 22.	June 26, 28, 30; July 1-3, 19, 22; Sept. 5-7.
1896	Jan. 6, 7, 9, 12, 16; Feb. 17, 18; Dec. 27, 28.	May 10; July 13; Aug. 8.	1902	Jan. 5, 31; Dec. 9, 10, 15, 28.	June 3; July 9; Aug. 4.
1897	Jan. 31; Feb. 1, 5, 14.	Sept. 10.	1903	Jan. 19, 20; Feb. 18-21.	May 19, 20; July 2, 9, 10; Sept. 14.
1898	Jan. 31; Feb. 3, 4; Dec. 14.	July 1, 3, 4, 30; Sept. 1-3.			
1899	Jan. 2, 11; Feb. 9, 10, 11, 15.	None.			

CONNECTICUT.

Western Section: NEW HAVEN COUNTY. Station: WATERBURY.

N. J. WELTON, Observer.

[Latitude 41° 32' N. Longitude, 73° W. Elevation, 400 feet.]

The station is located about one-half mile north of Center square, in the residential section of the city, at an elevation of 100 feet, above the center of the city and on a decided hill. The ground in this vicinity slopes gently to the southward toward the center of the city. The equipment consists of maximum and minimum thermometers and rain gage, furnished by the Weather Bureau. The thermometers and shelter are located 40 feet northeasterly from the dwelling of the observer and 4½ feet above the sod. The rain gage is located 87 feet west of the shelter, 55 feet west of the dwelling house above-mentioned, and 36 feet southeasterly from a stable. The top of the gage is 18 inches above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1887, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	30	39	63	22	-12	35	22	4.4	10	1.7	9.8	9.2
January.....	26	34	61	18	-20	32	16	3.7	12	6.0	1.8	13.2
February.....	26	35	65	18	-12	34	21	4.6	11	1.3	0.6	15.3
Winter mean.....	27	36		19				12.7	33	9.0	12.2	37.7
March.....	35	44	68	26	0	46	28	4.6	12	3.4	7.4	7.8
April.....	47	58	86	36	15	51	42	3.4	10	1.0	11.5	2.5
May.....	58	70	94	47	26	63	55	4.2	12	5.6	8.1	0.0
Spring mean.....	47	57		36				12.2	34	10.0	27.0	10.8
June.....	67	78	98	56	37	70	61	3.4	9	2.3	0.7	0.0
July.....	71	82	102	61	43	77	66	5.1	12	4.4	4.4	0.0
August.....	79	80	101	59	39	75	67	4.7	10	5.3	9.4	0.0
Summer mean.....	69	80		59				13.2	31	12.0	14.5	0.0
September.....	63	74	94	52	26	69	57	3.8	9	2.6	6.2	0.0
October.....	51	61	87	41	20	58	44	4.0	9	0.9	4.3	0.0
November.....	40	49	75	31	5	46	35	4.0	10	6.0	2.4	3.0
Fall mean.....	51	61		41				11.8	28	9.5	12.9	3.0
Annual mean.....	49	59	102	39	-20			49.9	126	40.5	66.6	51.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 17, 24, 25.....	June 17, 23; July 1, 13, 20, 27, 28.	1900	Jan. 4; Feb. 3, 27, 28..	May 14, 15; June 25, 27, 28; July 4, 6, 7, 16-20, 22-25; Aug. 6, 7, 9-12, 25-28, 30, 31; Sept. 3-6, 9.
1895	Feb. 1, 6-9.....	June 1-3; Sept. 21-23.			
1896	Jan. 6-8; Feb. 17, 18; Dec. 28.	May 10; Aug. 5, 8-12.	1901	Jan. 20; Feb. 1, 2; Dec. 7, 22.	June 25-30; July 1-3, 15, 16, 18, 19, 21, 22, 30, 31; Sept. 5-7.
1897	Feb. 1.....	July 10; Sept. 10.	1902	Dec. 9, 10, 15.....	May 23; June 3; July 9, 14, 15, 28.
1898	Jan. 30, 31; Feb. 2-4; Dec. 14.	June 26, 27; July 2, 4, 5, 9, 16, 22, 30, 31; Aug. 1, 9, 25; Sept. 1-6.	1903	Jan. 19, 20; Dec. 27, 29.	May 18-20; July 1, 2, 8-10, 25, 30; Sept. 14.
1899	Jan. 2, 11; Feb. 9-12, 15, 16.	June 5-8, 14, 15, 20, 24; July 3, 4, 27; Aug. 5, 17, 20-22.			

CONNECTICUT.

Southeast Coast: NEW LONDON COUNTY. Station: NEW LONDON.

JAMES R. MAY, Observer.

[Latitude, 41° 18' N. Longitude, 72° 8' W. Elevation, 47 feet.]

The station was established in 1871, under the direction of the United States Signal Service, War Department; on July 1, 1891, the station was transferred to the Department of Agriculture, Weather Bureau, and continued as a regular Weather Bureau station until December, 1895, when it was discontinued as a regular Weather Bureau station and established as a voluntary station, which it continues to be at the present time. The office was located in the United States custom-house and the instruments exposed on the roof of the building, where they have remained unchanged in elevation and exposure. The thermometers are 50 feet above ground and exposed in a standard shelter; the rain gage is also exposed on the roof, at an elevation of 42 feet above ground. The station is located within a few hundred feet of the water front in a low and level portion of the city, from which the ground rises into hills within one-half to 1 mile.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1885, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	33	40	60	26	- 6	40	28	3.4	11	2.7	1.8	13.4	11.0	NW.
January.....	28	36	65	21	- 4	37	21	4.0	13	0.5	4.4	10.6	25.0	NW.
February.....	29	36	67	22	- 10	36	23	4.0	12	3.1	4.0	12.0	11.0	NW.
Winter mean.....	30	37	.....	23	.....	.....	.....	11.4	36	6.3	10.2	36.0	.....	NW.
March.....	36	43	67	29	4	44	30	4.2	14	3.0	3.7	7.3	10.5	NW.
April.....	46	54	83	39	17	50	42	3.4	11	1.5	4.5	0.3	3.0	NW.
May.....	57	65	93	48	31	59	53	3.7	11	2.2	8.1	T.	T.	SW.
Spring mean.....	46	54	.....	39	.....	.....	.....	11.3	36	6.7	16.3	7.6	.....	NW.
June.....	65	73	95	57	43	70	60	2.6	10	1.7	1.1	0.0	0.0	SW.
July.....	70	77	95	63	52	76	67	3.7	13	3.6	4.7	0.0	0.0	SW.
August.....	70	77	93	62	47	74	66	3.6	10	3.6	7.8	0.0	0.0	SW.
Summer mean.....	68	76	.....	61	.....	.....	.....	9.9	33	8.9	13.6	0.0	0.0	SW.
September.....	60	67	93	53	35	68	60	3.4	10	2.5	3.3	0.0	0.0	SW.
October.....	53	61	83	45	27	58	49	4.0	10	3.4	8.5	T.	T.	NW.
November.....	43	50	72	36	10	47	37	3.8	11	2.3	7.4	11.0	3.5	NW.
Fall mean.....	52	59	.....	45	.....	.....	.....	11.2	31	8.2	19.2	11.0	.....	NW.
Annual mean.....	49	57	95	42	- 10	.....	.....	43.8	136	30.1	59.3	54.6	25.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25	June 11, 23; July 29.	1899	Jan. 2; Feb. 10-13	None.
1895	Jan. and Feb.; no data.	June 2; Sept. 21, 22.	1900	Feb. 27	May 16; June 27, 28; July 8, 9, 17-19; Sept. 7.
1896	Jan. 7, 8; Feb. 17; Dec. 28.	May 10; Aug. 10, 12.	1901	None	June 30; July 1, 4-7, 22.
1897	None	None.	1902	Dec. 9, 10	July 10, 15.
1898	do.	July 3.	1903	None	May 21; July 3, 9-11.

CONNECTICUT.

South Coast: NEW HAVEN COUNTY. Station: NEW HAVEN.

L. M. TARR, Local Forecaster.

[Established by Signal Service in December, 1872. Latitude 41° 18' N. Longitude, 72° 56' W. Elevation, 23 feet.]

New Haven is situated in a very level valley that runs nearly north and south. This valley is about 10 miles long and 5 miles wide. It is surrounded on the east and west sides and the north end by high hills, but the south end is open to New Haven harbor and Long Island Sound. The hills on the west side are from 300 to 500 feet high and those on the east side are from 100 to 200 feet high. The north end of the valley terminates abruptly in a short range of hills that are from 700 to 800 feet high.

The office was located in the insurance building in December, 1872, and remained in this building until January 1, 1904. This building is located on Chapel street in the central portion of the city, facing New Haven green.

The thermometers were placed in an instrument shelter outside of a north window, 85 feet above ground, from December 10, 1872, to February 10, 1881, when they were moved to a shelter on the roof at an elevation of 117 feet above ground. The rain and snow gages were located on the roof at an elevation above the ground of 110 feet.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; humidity, fifteen years; sunshine, four years. Remainder of data is from the full period of observation, thirty-one years, January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with .001 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	32	38	65	25	-10	39	26	3.5	11	2.1	5.7	6.4	10.0	76	141	72	158	169	58	N.	
January.....	28	35	65	20	-14	37	20	4.0	13	3.6	5.5	10.0	20.0	74	115	71	132	174	58	N.	
February.....	29	36	67	21	-11	36	20	4.0	12	6.4	3.2	11.2	14.0	73	113	72	139	204	68	N.	
Winter mean.....	30	36	.....	22	.....	.....	.....	11.5	36	12.1	14.4	27.6	.....	74	123	72	143	182	61	N.
March.....	35	43	69	28	0	45	27	4.5	13	4.2	7.5	8.1	28.0	71	150	69	169	228	61	NW.	
April.....	46	55	85	38	16	52	39	3.5	11	2.0	2.6	1.3	5.0	74	244	74	262	245	61	NW.	
May.....	58	67	93	48	30	64	51	3.7	11	3.3	6.0	T.	T.	77	386	76	408	273	61	S.	
Spring mean.....	46	55	.....	38	.....	.....	.....	11.7	35	9.5	16.1	9.4	.....	74	260	73	280	249	61	S.
June.....	66	76	96	58	41	71	61	2.9	11	1.8	2.2	0.0	0.0	78	547	78	565	286	63	S.	
July.....	72	80	97	63	49	76	68	5.0	12	2.3	1.8	0.0	0.0	80	638	78	707	305	66	S.	
August.....	70	78	98	61	45	73	65	4.9	10	0.9	7.1	0.0	0.0	80	598	80	638	281	66	S.	
Summer mean.....	69	78	.....	61	.....	.....	.....	12.8	33	5.0	11.1	0.0	.....	79	594	79	637	291	65	S.
September.....	64	72	100	55	32	70	59	3.6	10	2.1	7.7	0.0	0.0	78	479	76	499	252	67	SW.	
October.....	53	61	86	44	24	58	48	3.9	10	2.0	6.5	T.	T.	76	310	74	335	201	58	N.	
November.....	41	49	72	34	2	47	34	3.7	10	4.1	4.7	3.3	12.0	75	198	72	221	150	50	N.	
Fall mean.....	53	61	.....	44	.....	.....	.....	11.2	30	8.2	18.9	3.3	.....	76	329	74	352	201	58	N.
Annual mean.....	50	58	100	41	-14	.....	.....	47.2	134	34.8	60.5	40.3	28.0	76	327	74	353	231	61	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	June 23; July 13, 20, 21, 29.	1899	Jan. 1, 2; Feb. 9-11...	June 6, 8; July 27.
1895	Feb. 6.....	May 31; June 1, 2; Sept. 12, 21-23.	1900	Feb. 27.....	May 18; June 27, 28; July 4, 7, 16-18; Aug. 11.
1896	Jan. 17, 18; Feb. 6, 7; Dec. 28.	May 10; July 13; Aug. 12.	1901	Jan. 20.....	June 28, 30; July 1-3, 21.
1897	None.....	Sept. 10, 11.	1902	Dec. 5.....	July 9.
1898	do.....	June 26; July 1, 3, 4, 30; Aug. 31; Sept. 1-3.	1903	None.....	May 20.

CONNECTICUT.

Southwest Coast: FAIRFIELD COUNTY. Station: NORWALK.

GEORGE C. COMSTOCK, Observer.

[Established Jan. 1, 1893. Latitude, 41° 2' N. Longitude, 73° 5' W. Elevation, 116 feet.]

The station is located about 3 miles from the city of Norwalk on a nursery and fruit farm which is in a valley running north and south, surrounded by wooded hills extending to an elevation of from 50 to 100 feet above the valley. The station is equipped with standard instruments. The thermometers are exposed in a shelter, located about 100 feet from the dwelling. The rain gage is on the ground, 25 feet from the shelter. The exposure is good and away from any effects of trees or buildings.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December	29	39	71	20	— 8	34	25	3.0	10	2.8	8.6	5.2	6.0
January	26	35	56	17	—15	29	18	3.3	10	4.4	1.8	9.1	12.0
February	26	35	57	17	—16	29	21	3.6	9	0.5	0.7	10.6	16.0
Winter mean	29	39	.....	18	.....	.....	.....	9.9	29	7.7	11.1	24.9	.....
March	36	45	67	27	0	44	30	3.5	10	2.4	6.6	6.0	10.0
April	46	58	92	35	13	49	44	3.0	8	2.9	8.6	1.5	7.0
May	58	71	96	46	28	62	55	4.6	11	1.8	8.3	0.0	0.0
Spring mean	47	58	.....	36	.....	.....	.....	11.1	29	7.1	23.5	7.5	.....
June	67	79	99	55	40	70	64	3.0	9	2.1	1.3	0.0	0.0
July	72	83	100	60	45	76	68	4.7	11	4.7	4.9	0.0	0.0
August	70	80	99	59	43	74	65	4.6	9	4.6	9.0	0.0	0.0
Summer mean	70	81	.....	58	.....	.....	.....	12.3	29	11.4	15.2	0.0	.....
September	63	74	93	52	32	67	58	3.5	8	2.0	3.1	0.0	0.0
October	52	62	86	41	23	57	46	3.3	7	4.0	3.5	T.	T.
November	39	46	71	32	7	45	35	4.0	9	4.1	1.6	4.7	10.0
Fall mean	51	61	.....	42	.....	.....	.....	10.8	24	10.1	8.2	4.7	.....
Annual mean	49	60	100	38	—16	.....	.....	44.1	111	36.3	58.0	37.1	16.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	Jan. 5; Feb. 6-9.....	May 10, 31; June 1, 2; July 21; Sept. 12, 21-23.	1899	Jan. 1, 2; Feb. 9-11, 15.	None.
1896	Jan. 6, 8, 16; Feb. 17, 18; Mar. 14; Dec. 25, 28.	Apr. 18; May 10, 11; June 21; July 13, Aug. 5, 7, 9-13.	1900	Jan. 4; Feb. 27, 28.....	May 14, 15; June 25, 27-29; July 4-8, 15-19, 25; Aug. 6, 7, 9-12, 25-27; Sept. 5.
1897	Feb. 1, 14.....	July 6, 10; Sept. 10.	1901	Jan. 19, 20; Feb. 1, 8, 11; Dec. 23.	June 26-30; July 1-3, 5, 15-19, 21-24, 30; Aug. 21.
1898	Jan. 30, 31; Feb. 2-5; Dec. 14.	June 25, 26; July 1, 3, 4, 15, 30; Sept. 1-3.	1902	Dec. 9, 10.....	May 23; June 3; July 5, 9, 14, 28; Aug. 4.
			1903	Feb. 18-21.....	May 18-22; July 1-3, 8-11, 26, 30.

NEW YORK.

By ROBERT G. ALLEN,
Section Director.

NEW YORK.

Physical features.—The greater part of New York State consists of a triangular tableland, varying in elevation from a few feet above sea level to more than 2,000 feet elevation. Three mountain systems are included in this triangular mass—the Adirondacks with a maximum elevation of about 5,000 feet, the Catskill Mountains with a maximum elevation of about or more than 3,000 feet, and the Allegheny Mountains in the southwest (Allegany and Cattaraugus counties) with a maximum elevation of about or more than 2,000 feet. This triangular mass is the northern termination of the Appalachian system in New York. The land slopes northerly toward Lakes Erie and Ontario, the depression continuing down the St. Lawrence Valley to the sea. The tableland is terminated in the east by the great valley extending from the mouth of the Hudson River northward along the Hudson and Champlain valleys to the St. Lawrence River. There is another depression extending from Lake Ontario through the valley of Oneida Lake and the valley of the Mohawk River east of the Hudson River. This divides the main plateau from the northern plateau (the Adirondack region and its foothills). The main plateau region is subdivided into the eastern and western plateaus by the depression extending from the lowlands near Lake Ontario through the Seneca Valley southward to the Susquehanna Valley. The section to the east of the Hudson River consists of hilly country with varying elevation, which is a part of the western foothills of the mountains of New England. Long Island is generally level, with but little elevation above tide, but with a ridge of low hills through its center and the greater portion of its length.

A chain of lakes extends throughout the central portion of the State, which is generally called the Central Lake Region of New York. These lakes lie mostly in a north and south direction and extends along an east-northeast curve to Oneida Lake, beginning with Hemlock Lake in Livingston County. The elevation above sea level of these lakes is as follows:

Cayuga Lake, 378 feet; Seneca Lake, 445 feet; Owasco Lake, 706 feet; Oneida Lake, 370 feet; Skaneateles Lake, 978 feet; Onondaga Lake, 362 feet.

The elevation of Lake Erie is 573 feet and that of Lake Ontario 247, while that of Lake Chautauqua is 1,212 feet above sea level.

New York is noted for its peculiar topography, consisting of lakes, mountains, hills, and valleys. The principal valleys are the Hudson, Mohawk, St. Lawrence, and Champlain. These valleys, owing to their sheltered locations, generally show higher summer temperatures than the surrounding country. There is no marked difference in the annual means as compared with those of interior stations with small elevation. The Adirondack Mountains exert a marked influence on the temperature in that section, also causing heavy snow over the country between the mountains and Lake Ontario, where the greatest depth of snow for the State falls. Low temperatures obtain in the other two mountain regions and in all sections of any considerable elevation. The precipitation is comparatively heavy in the southeast, owing partly to proximity to the moisture supply. The winter precipitation in the southwest is also comparatively heavy.

The greater part of the above remarks on the physical features of the State was extracted from "The Climate of New York" by Mr. E. T. Turner.

Temperature.—The effect of topography upon temperature is plainly visible on any temperature chart for the State, whether for a day, month, or year. The three mountain sections, also the more pronounced sections of the hilly country, are marked by low minima and moderate maxima. There is frequently a difference of 10° to 20° or more between the minima at Binghamton and other interior stations and the minima at Buffalo or other lake stations. There is nearly always a marked difference between the minima of New York City, a place with a marine climate, and Saranac Lake, a mountain station in the Adirondacks. Frequently the difference is 10° to 30° or more. As an example, on January 19, 1904, the minimum temperature at New York City was -1°, as compared with -46° at Paul Smiths, near Saranac Lake, on the same day. At Binghamton, an interior station with moderate elevation, the minimum on the same date was -26°, as compared with -4° at Buffalo. We find the highest maxima in the valleys, particularly the Hudson and the Mohawk valleys, where maxima of 100° or higher are occasionally recorded. In the mountain sections low maxima prevail and an uncomfortably warm day is rare, while in other hilly sections, of which the State is chiefly composed, the summer temperatures are most pleasant, there being but a few days during the summer (less than a week) with uncomfortably high maxima, while the nights are with few exceptions cool and pleasant. Killing frosts are likely to occur in every month except June, July and August, and killing frosts occasionally occur in the colder sections even in the two last-mentioned months.

Precipitation.—Precipitation is heaviest in the southeast (the Hudson Valley, Long Island, and the southeast section of the eastern plateau), in the southwest, and the section between the Adirondacks and Lake Ontario. The precipitation is lightest in the interior of western New York, Avon averaging slightly less than 27 inches, in the Champlain Valley, and also in the St. Lawrence Valley, the annual rainfall for Ogdensburg being about 31 inches, as compared with 44.2 at Jamestown, in Chautauqua County, 50.4 at Number Four in Lewis County, 46.3 at Port Jervis in Orange County, 44.8 at New York City, and 48.5 at Setauket on Long Island. The rainfall is generally heavier in summer than at other seasons.

Snowfall.—The annual fall of snow varies greatly in the different sections. On Long Island the fall is from 25 to 30 inches in a year, as compared with 37 inches at New York City; in the Hudson Valley from 50 to more than 60 inches; on the eastern and western plateaus from 40 to more than 100 inches; along Lake Erie about 70 inches; along Lake Ontario 50 to 100 inches; in the Adirondacks from 90 to 140 inches, and in the St. Lawrence Valley about 50 inches.

The number of days with snowfall is as follows: Long Island, about 15; Hudson Valley, 20 to 25; eastern plateau, 15 to 30; western plateau, 20 to 50; along lakes Erie and Ontario, 60 to 70; in the St. Lawrence Valley, about 24 (4), and in the Adirondacks, 40 to 55 or more.

Winds.—The prevailing wind direction is from the southwest along the Great Lakes and in the St. Lawrence Valley, west in northern New York, and variable in other sections. The highest velocities are recorded at New York City and Buffalo. At Buffalo the wind velocity equalled or exceeded 60 miles an hour 72 times in twenty-nine years, and the highest velocity recorded at that station since records were kept is 90 miles per hour from the southwest, January 13, 1890.

At Rochester, which is not located directly on the lake, the wind velocity equalled or exceeded 45 miles per hour 46 times in twenty years, and the wind attained the velocity of 60 miles an hour 5 times in that time, which is the maximum for that station. At the Albany station a velocity equalling or exceeding 40 miles an hour was reached 19 times in sixteen years, and the highest velocity ever recorded there was 60 miles northeast on December 5, 1898. From 1896, when the anemometer exposure was probably improved, to 1903, eight years, the wind at New York City reached 60 miles or higher 88 times. The highest velocity reported at that station is 80 miles from the north, March 20, 1899.

Hail.—Destructive hail is not frequent. It occurs from one to four times a year, being most frequent in the lower Hudson Valley, parts of Long Island, and Chautauqua County, where some stations report as many as four days a year, on the average, with hail. In parts of western and northern New York only one day with hail, annually, is recorded.

Thunderstorms.—Thunderstorms are more frequent in the Hudson Valley and the Atlantic coast section, where about 20 to 30 such storms occur in a year. They are also frequent along lakes Erie and Ontario, and Buffalo reports as many as 55 a year, while they are less frequent in the interior, and also in northern New York and the St. Lawrence Valley, the latter section showing but 6, as compared with about 14 in the northern plateau.

Humidity.—The relative humidity appears to be higher in the interior than at the lake and seacoast stations. The relative humidity at New York is 73, as compared with 75 at Ithaca and 76 at Albany, although it averages 76 at Oswego.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Albany	Albany	Hudson Valley	192	Oneida	Rome	Mohawk Valley	186
Allegany	Angelica	Western Plateau	194	Onondaga (see Auburn)		Central Lakes	
Broome (see Ithaca)		Eastern Plateau		Ontario (see Rochester)	Syracuse	Western Plateau	
Cattaraugus (see Angelica)		Western Plateau		Orange	Port Jervis	Eastern Plateau	197
Cayuga	Auburn	Central Lakes	190	Orleans (see Appleton)		Great Lakes	
Chautauqua	Jamestown	Western Plateau	193	Oswego	Oswego	do.	185
Chemung (see Ithaca)	do.	do.		Otsego	Cooperstown	Eastern Plateau	191
Chenango (see Coopers-town)		Eastern Plateau		Putnam (see Honey-mead Brook)		Hudson Valley	
Clinton (see Saranac Lake)		Champlain Valley		Queens (see New York)		Atlantic Coast	
Columbia (see Honey-mead Brook)		Hudson Valley		Rensselaer (see Albany)		Hudson Valley	
Cortland (see Ithaca)		Eastern Plateau		Richmond (see New York)		Atlantic Coast	
Delaware (see Coopers-town)		do.		Rockland (see Port Jervis)		Eastern Plateau	
Dutchess	Honey-mead Brook	Hudson Valley	196	Saratoga (see Glens Falls)		Champlain Valley	
Erie	Buffalo	Great Lakes	188	Schenectady (see Albany)		Mohawk Valley	
Essex	Saranac Lake	Northern Plateau	180	Schoharie (see Coopers-town)		Eastern Plateau	
Franklin (see Saranac Lake)		do.		Schuyler (see Ithaca)		Western Plateau	
Fulton (see Glens Falls)		do.		Seneca (see Auburn)		Central Lakes	
Genesee (see Rochester)		Western Plateau		Steuben (see Angelica)		Western Plateau	
Greene (see Albany)		Hudson Valley		St. Lawrence	Ogdensburg	St. Lawrence Valley	179
Hamilton (see Saranac Lake)		Northern Plateau		Suffolk	Setauket	Atlantic Coast	199
Herkimer (see Rome)		Mohawk Valley		Sullivan (see Port Jervis)		Eastern Plateau	
Jefferson (see Ogdensburg)		St. Lawrence Valley		Tioga (see Ithaca)		Western Plateau	
Kings (see New York)		Atlantic Coast		Tompkins	Ithaca	Central Lakes	195
Lewis	Lowville	Northern Plateau	181	Ulster (see Port Jervis)		Eastern Plateau	
do.	Number Four	do.	182	Warren	Glens Falls	Champlain Valley	187
Livingston	Avon	Western Plateau	189	Washington (see Glens Falls)		do.	
Madison (see Rome)		Eastern Plateau		Wayne (see Rochester)		Great Lakes	
Monroe	Rochester	Great Lakes	184	Westchester (see Honey-mead Brook)		Hudson Valley	
Montgomery (see Albany)		Mohawk Valley		Wyoming (see Avon)		Western Plateau	
Nassau (see New York)		Atlantic Coast		Yates (see Auburn)		Central Lakes	
New York	New York	do.	198				
Niagara	Appleton	Great Lakes	183				

STATE SUMMARY.

Station.	Number.	Temperature.										Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.			
° F.	° F.	° F.	° F.	° F.	° F.								
Ogdensburg.....	1	44	54	35	97	July, 1894.	-28	February, 1896	2	141			
Saranac Lake.....	2	42	52	31	95	July, 1897.	-38	do.	2	155			
Lowville.....	3	44	54	33	95	do.	-32	January, 1896.	3	156			
Number Four.....	4	41	51	32	91	July, 1901.	-31	do.	0	170			
Appleton.....	5	47	56	38	98	July, 1897.	-12	February, 1896.	4	128			
Rochester.....	6	47	55	39	99	do.	-12	January, 1875.	7	128			
Oswego.....	7	46	54	39	100	July, 1878.	-20	January, 1896.	3	121			
Rome.....	8	46	54	36	97	July, 1892.	-22	January, 1892.	1	144			
Glens Falls.....	9	47	56	36	98	June, 1901.	-22	February, 1895.	6	144			
Buffalo.....	10	47	54	40	95	July, 1897.	-14	January, 1884.	1	122			
Avon.....	11	48	58	37	102	do.	-13	February, 1899.	10	145			
Auburn.....	12	47	59	39	99	July, 1901.	-10	do.	12	126			
Cooperstown.....	13	44	53	36	92	July, 1898.	-23	February, 1896.	0	142			
Albany.....	14	48	57	40	100	do.	-24	January, 1904.	9	123			
Jamestown.....	15	47	57	38	95	July, 1897.	-16	February, 1899.	1	143			
Angelica.....	16	45	56	34	95	do.	-27	do.	5	155			
Ithaca.....	17	47	56	38	98	August, 1899.	-20	December, 1884.	6	131			
Honeymead Brook.....	18	47	57	38	96	July, 1898.	-16	February, 1899.	3	137			
Port Jervis.....	19	48	59	39	103	July, 1901.	-12	January, 1899.	6	134			
New York.....	20	52	59	45	100	September, 1881.	-6	February, 1899.	6	89			
Setauket.....	21	51	58	44	98	July, 1901.	-5	February, 1896.	3	88			

Station	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Ogdensburg.....	1	Oct. 8	Apr. 26	Sept. 23	May 19	Inches. 30.7	Inches. 7.6	Inches. 9.7	Inches. 7.0	Inches. 6.4
Saranac Lake.....	2	Sept. 14	May 22	Aug. 21	June 11	35.6	7.8	11.6	8.9	7.3
Lowville.....	3	Sept. 24	May 14	Sept. 6	May 29	36.4	7.7	10.5	9.8	8.4
Number Four.....	4	Sept. 23	May 24	Sept. 9	June 10	50.4	10.4	13.5	13.5	13.0
Appleton.....	5	Oct. 13	May 7	Sept. 23	June 5	32.7	7.0	10.2	8.4	7.2
Rochester.....	6	Oct. 19	May 1	Sept. 26	May 30	34.5	8.5	9.1	7.9	9.0
Oswego.....	7	Oct. 13	Apr. 25	Oct. 3	May 29	36.8	7.9	9.6	9.6	9.7
Rome.....	8	Sept. 30	May 10	Sept. 1	June 7	47.9	11.3	13.6	11.7	11.3
Glens Falls.....	9	Oct. 6	do.	Sept. 14	May 25	40.5	8.9	12.4	9.8	9.4
Buffalo.....	10	Oct. 16	Apr. 25	Sept. 23	May 23	37.4	8.3	9.7	9.8	9.6
Avon.....	11	Oct. 3	May 15	Sept. 15	May 31	27.0	6.2	9.1	6.7	5.0
Auburn.....	12	Oct. 12	May 4	Oct. 2	May 15	36.7	8.3	11.1	9.8	7.5
Cooperstown.....	13	Oct. 1	May 7	Sept. 15	May 27	39.9	9.1	13.1	9.8	7.9
Albany.....	14	Oct. 18	Apr. 24	Oct. 3	May 30	36.9	8.2	11.6	9.2	7.9
Jamestown.....	15	Oct. 2	May 4	Sept. 15	May 29	44.2	9.7	12.5	10.9	11.0
Angelica.....	16	Sept. 24	May 22	Sept. 1	June 21	37.9	9.8	12.2	8.7	7.2
Ithaca.....	17	Oct. 11	May 2	Sept. 15	May 29	34.4	8.4	10.8	8.5	6.6
Honeymead Brook.....	18	Oct. 9	Apr. 30	Sept. 25	May 23	43.2	9.6	13.3	10.2	10.2
Port Jervis.....	19	Oct. 7	Apr. 29	Sept. 15	May 17	46.2	10.8	14.4	10.3	10.7
New York.....	20	Nov. 6	Apr. 10	Oct. 15	Apr. 30	44.8	10.6	12.3	10.8	11.1
Setauket.....	21	Nov. 10	Apr. 15	Oct. 22	May 17	48.5	11.7	12.0	12.7	12.2

NEW YORK.

St. Lawrence Valley: ST. LAWRENCE COUNTY. Station: OGDENSBURG.

ST. LAWRENCE STATE HOSPITAL, Observer.

[Established in December, 1889. Latitude, 44° 43' N. Longitude, 75° 30' W. Elevation, 175 feet.]

The State Hospital is situated on a broad, open plain, within 100 rods of the St. Lawrence River and about 2 miles from the center of the city of Ogdensburg.

The thermometers are exposed in a standard cotton region shelter, 4 feet 10 inches above ground on an open lawn. The rain gage is located on a lawn, 75 feet from the nearest building. The top of gage is 3½ feet above the ground. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	22	32	65	13	-24	28	16	2.3	10	2.2	1.1	9.3	13.0	SW.
January.....	16	26	62	7	-26	20	8	2.3	8	1.1	2.8	11.0	12.0	SW.
February.....	18	27	55	9	-28	23	13	1.8	8	1.0	2.8	12.5	9.5	SW.
Winter mean.....	19	28	.....	10	.....	.....	.....	6.4	26	4.3	6.7	32.8	.....	SW.
March.....	29	39	68	20	-8	39	21	2.7	10	3.0	2.3	11.2	12.0	SW.
April.....	44	55	80	34	11	47	40	2.0	7	2.4	1.8	2.1	11.0	SW.
May.....	56	66	92	46	20	60	53	2.9	12	2.0	0.2	T.	T.	SW.
Spring mean.....	43	53	.....	33	.....	.....	.....	7.6	29	7.4	4.3	13.3	.....	SW.
June.....	64	75	92	56	38	69	52	3.2	9	4.5	8.5	0.0	0.0	SW.
July.....	69	79	97	60	42	72	65	3.4	11	1.6	6.6	0.0	0.0	SW.
August.....	67	77	93	58	38	71	63	3.1	10	2.2	4.9	0.0	0.0	SW.
Summer mean.....	67	77	.....	58	.....	.....	.....	9.7	30	8.3	20.0	0.0	.....	SW.
September.....	61	71	89	51	30	68	56	2.5	8	0.9	1.2	0.0	0.0	SW.
October.....	51	59	81	40	18	65	44	2.1	9	2.4	4.7	0.1	0.5	SW.
November.....	36	44	70	28	3	40	30	2.4	10	1.0	0.7	4.0	5.0	SW.
Fall mean.....	49	58	.....	40	.....	.....	.....	7.0	27	4.3	6.6	4.1	.....	SW.
Annual mean.....	44	54	97	35	-28	.....	.....	30.7	112	24.3	37.6	50.2	13.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Feb. 24; Dec. 29.....	July 2, 17, 18-20.	1899	Jan. 10.....	Aug. 19-21, 29.
1895	Feb. 5-7.....	June 9, 26; July 4, 8; Aug. 16.	1900	None.....	None.
1896	Jan. 5, 6; Feb. 17, 18..	Aug. 9, 11, 14.	1901	Jan. 19, 23.....	July 16, 17.
1897	Jan. 19, 25.....	July 4, 5, 7-9.	1902	Dec. 9.....	None.
1898	Jan. 30.....	July 20, 24, 28.	1903	None.....	None.

NEW YORK.

Northern Plateau: ESSEX COUNTY. Station: SARANAC LAKE.

E. C. EATON, Observer.

[Established November, 1893. Latitude, 44° 19' N. Longitude, 74° 8' W. Elevation, 1,620 feet.]

This station is situated in the village of Saranac Lake, one-eighth of a mile from the Saranac River and 75 or 100 feet above its surface. North and northwestward, at a considerable distance, is a range of the Adirondack Mountains.

The shelter is located on sloping ground, about 50 feet from any building and 4 feet above ground. The rain gage is near the shelter and 2 feet above the turf.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	19	29	59	10	-32	23	14	2.4	15	2.9	3.1	18.2	12.5	SW.
January.....	15	26	55	4	-35	20	12	2.6	14	2.2	5.4	19.5	8.5	W.
February.....	16	26	56	5	-38	23	10	2.4	13	1.5	3.6	22.7	12.0	SW.
Winter mean.....	17	27		6				7.4	42	6.6	12.1	60.4		W.
March.....	28	39	76	16	-22	38	18	2.8	14	3.5	3.0	15.3	14.0	W.
April.....	41	52	84	30	5	43	39	2.1	10	0.6	2.2	4.9	9.5	W.
May.....	54	66	91	42	16	58	50	2.9	11	1.2	2.3	0.3	2.0	W.
Spring mean.....	41	52		29				7.8	35	5.3	7.5	20.5		W.
June.....	62	74	92	51	29	67	58	4.1	11	1.7	5.8	0.0	0.0	W.
July.....	66	78	95	55	33	70	63	4.1	13	2.5	4.2	0.0	0.0	W.
August.....	63	74	92	51	30	62	57	3.4	12	1.9	2.7	0.0	0.0	W.
Summer mean.....	64	75		52				11.6	36	6.1	12.7	0.0		W.
September.....	57	69	89	45	24	60	55	3.2	10	2.6	3.7	T.	T.	W.
October.....	46	56	82	35	11	51	39	2.8	12	2.8	4.2	0.7	2.0	W.
November.....	32	40	70	24	-2	39	27	2.8	13	0.8	2.2	10.0	18.6	W.
Fall mean.....	45	55		35				8.8	35	6.2	10.1	10.7		W.
Annual mean.....	42	52	95	31	-38			35.6	148	24.2	42.4	91.6	18.6	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Feb. 4, 5, 16, 23-25; Dec. 28, 29.	July 2, 19, 20, 27.	1898	Jan. 1-3, 29, 30; Feb. 1, 2; Dec. 13.	July 3, 20.
1895	Jan. 4, 5; Feb. 5-7, 22, 23.	May 6, 30; June 10, 11; July 20.	1899	Jan. 9-11, 18, 19; Feb. 10-12.	July 4; Aug. 18-21.
1896	Jan. 4, 6; Feb. 16-18; Dec. 26.	July 2; Aug. 8.	1900	Feb. 27; Mar. 12; Dec. 17.	None.
1897	Jan. 12, 13, 18, 19, 24, 25, 29-31; Feb. 28; Mar. 1.	July 4-10.	1901	Jan. 3, 19, 20.....	June 27-29; July 15, 16.
			1902	Dec. 9.....	None.
			1903	Jan. 19, 20, 24; Dec. 19.	None.

NEW YORK.

Northern Plateau: LEWIS COUNTY. Station: LOWVILLE.

CHARLES S. RICE, Observer

[Established by the Signal Service in May, 1890. Latitude, 43° 47' N. Longitude, 75° 30' W. Elevation, 900 feet.]

Lowville is situated in the valley of the Black River, which lies between the high ridge of the "Tug Hill" range on the west and the more distant Adirondack highlands on the east. The surface rises westward from the river in "terraces," upon one of which the station is situated, being about one-half mile distant from the village of Lowville and considerably above it.

The thermometers are exposed 5 feet above a grass plot, in a slatted shelter having a double roof. The rain gage is exposed near the shelter, 4 feet above the ground and 50 feet distant from house and barn.

Temperature means before 1892 taken from twice-daily observations; after 1892 from the daily extremes.

The record of temperature and precipitation is included within the period of observation, January, 1827, to December, 1903. The record prior to 1891 is much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	23	31	59	13	-27	32	12	3.1	14	1.0	4.7	21.9	18.0	W.	
January.....	19	27	54	8	-32	29	5	2.6	13	2.7	1.6	23.4	14.0	W.	
February.....	20	27	51	8	-31	31	11	2.7	13	1.1	4.8	22.1	15.0	W.	
Winter mean.....	21	28		10				8.4	40	4.8	11.1	67.4		W.	
March.....	30	38	71	20	-13	38	20	2.4	12	1.9	3.2	15.2	27.0	W.	
April.....	43	53	84	33	4	51	34	2.3	9	1.3	5.7	3.3	7.0	W.	
May.....	54	66	89	44	20	59	49	3.0	13	3.6	3.6	T.	T.	W.	
Spring mean.....	42	52		32				7.7	34	6.8	12.5	18.5		W.	
June.....	63	75	92	52	33	69	58	3.4	12	4.1	4.3	0.0	0.0	W.	
July.....	68	80	95	57	35	72	62	3.8	13	1.8	1.4	0.0	0.0	W.	
August.....	65	77	94	54	35	70	60	3.4	11	1.8	5.0	0.0	0.0	W.	
Summer mean.....	65	77		54				10.6	36	7.7	10.7	0.0		W.	
September.....	58	70	92	47	25	62	52	2.8	11	1.3	2.8	T.	T.	W.	
October.....	46	58	84	38	13	54	41	3.4	12	4.5	5.0	1.2	4.0	S.	
November.....	35	42	66	27	-4	43	29	3.5	14	1.5	5.2	10.7	13.0	W.	
Fall mean.....	46	57		37				9.7	37	7.3	13.0	11.9		W.	
Annual mean.....	44	54	95	33	-32			36.4	147	26.6	47.3	97.8	27.0	W.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Feb. 5, 17, 24, 25; Dec. 29.	July 2, 18-20, 27.	1899	Jan. 10, 11; Feb. 12...	July 3-5; Aug. 18-21.
1895	Jan. 5; Feb. 5-7.....	June 1, 19; July 7, 17, 20, 21.	1900	None.....	June 26; Aug. 6, 11, 25; Sept. 2, 3.
1896	Jan. 5-7; Feb. 17, 18...	July 9.	1901	Jan. 20.....	June 28, 29; July 14, 15, 17.
1897	Jan. 13, 25; Mar. 1....	July 4, 5, 7-11.	1902	Dec. 9.....	None.
1898	Jan. 2, 30; Feb. 2; Dec. 14.	July 2, 3, 20, 28.	1903	Jan. 19, 24; Dec. 19....	None.

NEW YORK.

Northern Plateau: LEWIS COUNTY. Station: NUMBER FOUR.

CHARLES FENTON, Observer.

[Established by the Signal Service in 1888; equipment completed by the State in December, 1889. Latitude, 43° 50' N. Longitude, 75° 12' W. Elevation, 1,571 feet.]

This station, Number Four, is 18 miles east of Lowville, near the western limits of the Adirondack wilderness. The station stands on a plateau which commands a view of Beaver Lake, about one-half mile distant, and also a considerable range of the surrounding country in all directions. Since the hills in this section are much lower than the peaks of the eastern Adirondacks the air circulation about the station is nearly unobstructed.

The instruments are exposed in a shelter which is constructed after specifications of the Weather Bureau standard and is located 4 feet from north wall of a wooden house. The thermometers are 9½ feet above the ground. The rain gage is exposed on level ground, 30 feet from any obstruction and 3 feet 7 inches above ground.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	29	58	12	-28	30	13	4.3	14	4.3	3.3	31.2	21.0	S.
January.....	18	26	54	8	-31	23	9	4.7	14	4.5	6.6	32.0	19.1	SW.
February.....	17	27	53	8	-31	23	11	3.9	13	2.7	4.5	30.5	16.0	NW.
Winter mean.....	19	27		9				12.9	41	11.5	14.4	93.7		SW.
March.....	25	34	71	16	-17	35	19	3.8	13	5.4	3.2	25.0	20.0	NW.
April.....	39	50	81	29	-2	42	37	2.5	10	2.2	3.0	8.0	14.0	NW.
May.....	52	63	87	41	20	56	50	4.1	11	3.8	8.0	0.3	2.2	W.
Spring mean.....	39	49		29				10.4	34	11.4	14.2	33.3		NW.
June.....	61	72	89	50	29	65	55	4.0	11	1.3	4.0	0.0	0.0	W.
July.....	64	75	91	54	34	68	60	4.9	11	3.3	4.9	0.0	0.0	W.
August.....	62	73	91	52	33	66	60	4.6	10	0.8	6.3	0.0	0.0	W.
Summer mean.....	62	73		52				13.5	32	5.4	15.2	0.0		W.
September.....	56	66	88	46	25	59	50	4.8	9	3.1	8.5	0.3	3.9	W.
October.....	45	55	82	37	14	53	37	3.8	10	2.9	3.7	2.1	8.0	S.
November.....	32	40	67	25	-10	37	28	5.0	13	3.2	4.2	15.0	17.0	S.
Fall mean.....	44	54		36				13.6	32	9.2	16.4	17.4		S.
Annual mean.....	41	51	91	32	-31			50.4	139	37.5	60.2	144.4	21.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Feb. 5, 24, 25; Dec. 29.	July 20.	1899	Jan. 2, 10, 11; Feb. 11, 12.	Aug. 19-21.
1895	Jan. 5; Feb. 5-7.	None.	1900	Feb. 2, 27; Dec. 10.	None.
1896	Jan. 5, 6; Feb. 17, 18.	None.	1901	None.	July 15, 16.
1897	Jan. 13, 19, 25.	July 5, 7, 10.	1902	Dec. 9.	None.
1898	Jan. 2, 4, 30; Feb. 2; Dec. 14.	None.	1903	Jan. 19; Dec. 27.	None.

NEW YORK.

Lake Region: NIAGARA COUNTY. Station: APPLETON.

H. A. VAN WAGONER, Observer.

[Established by the Signal Service in October, 1888. Latitude, 43° 20' N. Longitude, 78° 41' W. Elevation, 270 feet.]

This station is situated in the open country, on the broad plain of northern Niagara County, at a distance of one mile from Lake Ontario. A standard shelter of the Weather Bureau pattern is in use and is exposed on an open grass plot 30 feet northeast of the observer's house and 60 feet from a barn which stands to the northeast. It is fastened securely to four cedar posts and is 4 feet and 2 inches above the ground. The rain gage is 50 feet distant from buildings and trees, the top of the gage being 5½ feet above the ground. The mean temperatures were obtained from the daily extremes.

Tabulated data are for the period, January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wd.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	36	66	23	- 2	36	25	2.5	13	3.7	1.6	9.3	7.0	SW.
January.....	26	32	59	19	- 2	32	22	2.6	13	3.0		14.0	10.0	SW.
February.....	24	32	58	18	-12	29	19	2.1	12	0.8	2.7	11.2	9.8	SW.
Winter mean.....	27	33		20				7.2	38	7.5	8.0	34.5		SW.
March.....	32	40	79	25	- 7	41	26	2.0	11	0.8	2.0	7.8	9.0	NW.
April.....	44	54	84	35	16	48	42	2.0	9	1.8	2.6	1.1	4.7	E.
May.....	55	65	94	44	26	60	51	2.9	12	2.2	6.0	0.1	2.0	SW.
Spring mean.....	44	53		35				6.9	32	4.8	10.6	9.0		SW.
June.....	65	75	95	54	32	67	61	2.8	10	1.0	6.5	0.0	0.0	SW.
July.....	70	80	98	59	40	73	64	4.2	11	1.2	3.4	0.0	0.0	SW.
August.....	67	77	97	58	41	73	64	3.1	9	2.2	6.7	0.0	0.0	SW.
Summer mean.....	67	77		57				10.1	30	4.4	16.6	0.0		SW.
September.....	61	71	96	52	31	65	58	3.2	9	3.5	6.4	0.0	0.0	SW.
October.....	50	60	88	42	24	58	42	2.4	10	1.6	6.7	0.2	2.0	SW.
November.....	40	47	72	33	12	46	36	2.8	12	3.5	4.8	3.6	4.2	SW.
Fall mean.....	50	59		42				8.4	31	8.6	17.9	3.8		SW.
Annual mean.....	47	56	98	38	-12			32.7	131	25.3	53.1	47.3	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25; Dec. 29....	June 22, 24; July 27, 28.	1899	Jan. 12, 31; Feb. 9-13.	June 5, 7, 13, 14; July 3; Aug. 19, 21.
1895	Feb. 5-9; Dec. 13.....	May 30, 31; June 1-3; July 7; Sept. 11, 20, 22.	1900	Feb. 26; Dec. 17.....	June 26, 27; July 6, 16, 17, 29; Aug. 5-11, 25; Sept. 2, 11, 26.
1896	Jan. 6; Feb. 16-18.....	July 1, 2, 12; Aug. 5, 6.	1901	Jan. 19, 20; Feb. 23, 24; Mar. 6.	June 27-29; July 1, 2, 16-18, 20, 21, 24, 28.
1897	Feb. 1; Mar. 1.....	July 4, 5, 11; Sept. 9, 10.	1902	Feb. 5, 16.....	July 7, 14, 27; Aug. 31.
1898	Feb. 3.....	June 30; July 2, 3, 18, 20, 25; Aug. 23, 31; Sept. 1-3.	1903	Feb. 18, 19.....	July 8, 9, 25; Sept. 15.

NEW YORK.

Lake Region: MONROE COUNTY. Station: ROCHESTER.

L. M. DEY, Local Forecaster.

[Established November 1, 1870. Latitude, 43° 8' N. Longitude, 77° 42' W. Elevation, 498 feet.]

Rochester is situated on the Genesee River, which flows north into Lake Ontario. The river has no valley here, but only a recent or post-glacial gorge. The city lies exposed on all sides on a plain which slopes north toward Lake Ontario. The elevation of the lake is 246 feet. The center of the city is about 7 miles from the lake, and has an elevation of 500 feet. Twenty miles south of the city the plain rises to about 900 feet.

The thermometers are exposed in the standard (Hazen) shelter, located on roof of Government building in center of city; height above ground, February 10, 1891, 81 feet; previous to 1885 a double-louver shelter was in use. The rain gage is also exposed on roof; height above ground, February 10, 1891, 78 feet.

The sunshine data are from 1894-1903; the average depth of snow from twenty years' record; the humidity from sixteen years. Remainder of tabulated data is from the full period of observation—thirty-three years—January, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of pos- sible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	29	35	70	22	-11	37	20	In.	19	1.6	4.6	17.0	17.2	79	1.46	79	1.60	58	21	SW.
January.....	24	31	69	18	-12	36	17	In.	21	1.3	3.3	22.6	13.4	80	1.19	78	1.27	86	30	SW.
February.....	24	32	65	17	-12	32	14	In.	18	4.8	1.5	20.8	22.0	77	1.04	76	1.13	114	39	SW.
Winter mean.....	26	33	.....	19	.....	.....	.....	9.0	58	7.7	9.4	60.4	.....	79	1.23	78	1.33	86	30	SW.
March.....	31	38	79	23	-7	43	21	In.	18	0.9	7.0	14.5	29.8	70	1.35	67	1.42	171	46	WNW.
April.....	45	53	90	36	11	53	36	In.	13	2.5	4.7	5.0	10.9	70	2.14	67	2.37	225	56	NW.
May.....	57	66	93	47	28	63	50	In.	14	1.2	3.5	T.	0.1	72	3.37	67	3.60	266	58	SW.
Spring mean.....	44	52	.....	35	.....	.....	.....	8.5	45	4.6	15.2	19.5	.....	71	2.29	67	2.46	220	53	NW.
June.....	66	76	95	57	36	71	61	In.	11	1.5	1.9	0.0	0.0	72	4.88	65	4.86	290	63	SW.
July.....	71	80	99	62	45	75	65	In.	12	1.9	5.4	0.0	0.0	74	5.72	68	5.79	296	64	SW.
August.....	69	78	97	60	43	74	65	In.	12	1.6	3.0	0.0	0.0	77	5.40	72	5.75	258	60	SW.
Summer mean.....	69	78	.....	60	.....	.....	.....	9.1	35	5.0	10.3	0.0	.....	74	5.33	68	5.47	282	62	SW.
September.....	63	72	98	53	34	72	56	In.	11	0.9	3.0	0.0	T.	78	4.33	74	4.54	223	59	SW.
October.....	51	59	87	42	19	59	43	In.	13	1.3	8.7	0.2	1.7	78	2.86	76	3.10	158	46	SW.
November.....	39	44	73	32	1	46	31	In.	16	0.8	3.2	8.3	12.6	78	1.99	78	2.14	78	27	SW.
Fall mean.....	51	58	.....	42	.....	.....	.....	7.9	40	3.0	14.9	8.5	.....	78	3.06	76	3.26	153	44	SW.
Annual mean.....	47	55	99	39	-12	.....	.....	34.5	178	20.3	49.8	88.4	29.8	75	2.98	72	3.13	185	47	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25; Dec. 29....	June 16, 17, 22-24, 26; July 1, 2, 17, 19, 20, 27, 28; Aug. 7, 8, 24; Sept. 2, 4, 15.	1899	Jan. 31; Feb. 9-12....	June 5, 6; July 5, 6; Aug. 12, 20, 21; Sept. 17.
1895	Feb. 5-9.....	May 30, 31; June 1, 2, 4, 11, 26; July 7, 17; Aug. 17; Sept. 4, 11, 20-22.	1900	Feb. 26.....	June 6, 26; July 16, 17, 24, 29; Aug. 5-11, 25; Sept. 1, 2, 11.
1896	Jan. 5-7; Feb. 16-18....	July 2, 29; Aug. 5, 6, 8; Sept. 11.	1901	Jan. 19, 20; Mar. 6....	June 27-29; July 1, 15, 17, 18, 21, 24, 28.
1897	None.....	July 3-5, 8-10, 11; Sept. 9, 10.	1902	None.....	July 7.
1898	Feb. 2, 3.....	June 30; July 2, 3, 7, 8, 17, 20, 23-25, 27-29; Aug. 3, 23, 31; Sept. 1-3.	1903	Feb. 17-19.....	July 1, 8, 9; Sept. 14, 15.

NEW YORK.

Lake Region: OSWEGO COUNTY. Station: OSWEGO.

J. L. LINSLEY, Observer.

[Established by Signal Service, November 1, 1870. Latitude, 43° 29' N. Longitude, 76° 35' W. Elevation, 292 feet.]

The office is centrally located on the west side of the Oswego River, in room 33 of the custom-house, on West Oneida street. The city lies on the shore of Lake Ontario, at the mouth of the Oswego River, in a saucer-shaped depression, with high land on the east, south, and west sides, the rise averaging about 100 feet.

All the instruments except the barometer are exposed on the roof, which is as high or higher than that of surrounding buildings. The shelter is of the ordinary standard pattern and is 11 feet above the roof. The thermometers are 76 feet above ground.

The anemometer and wind vane are exposed on the combined standard iron support, and the former is 91 feet above ground and 28 feet above roof, and the latter is 91.5 feet above ground and 29 feet above roof. The rain gage is 68 feet above ground and 5 feet above roof. Previous to August 1, 1884, the office was located on the third floor of the Grant block in West Bridge street, which location was 31 feet lower than the present.

Tabulated data are from the following periods of observation. Humidity, fifteen years. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	28	35	66	22	-18	36	20	3.8	19	2.3	10.5	20.3	18.0		83	1.35	78	1.44	S.
January.....	24	31	64	16	-20	36	15	3.3	17	0.9	4.2	22.5	12.7		85	1.38	81	1.26	S.
February.....	24	31	61	17	-18	32	12	2.7	15	3.5	3.0	18.5	16.0		84	1.09	79	1.22	NW.
Winter mean.....	25	32		18				9.8	51	6.7	17.7	61.3			84	1.27	79	1.31	S.
March.....	31	37	76	24	-10	41	19	3.0	15	1.2	4.0	10.7	19.1		79	1.46	75	1.58	NW.
April.....	43	50	85	36	13	52	38	2.2	12	1.6	3.4	2.0	3.8		73	2.24	69	2.27	W.
May.....	54	63	94	46	27	62	51	2.8	12	1.0	3.7	T.	T.		74	3.23	69	3.34	W.
Spring mean.....	43	50		35				8.0	39	3.8	11.1	12.7			75	2.31	71	2.40	W.
June.....	64	73	98	55	39	70	59	3.6	11	2.7	3.3	0.0	0.0		76	4.67	71	4.36	W.
July.....	70	78	100	62	45	75	65	3.3	11	1.8	3.9	0.0	0.0		75	5.61	71	5.66	W.
August.....	68	76	98	61	44	72	63	2.6	10	1.7	4.4	0.0	0.0		77	5.22	72	5.38	W.
Summer mean.....	67	76		59				9.5	32	6.2	11.6	0.0			76	5.17	71	5.13	W.
September.....	62	70	93	54	36	71	57	2.9	10	1.9	2.6	T.	0.1		77	4.28	71	4.51	S.
October.....	51	58	84	44	24	57	44	3.2	13	2.4	7.6	1.0	8.6		77	2.93	72	3.04	S.
November.....	39	45	71	33	-1	44	33	3.6	17	2.4	5.3	10.1	16.0		78	1.99	74	2.03	S.
Fall mean.....	51	58		44				9.7	40	6.7	15.5	11.1			77	3.07	72	3.19	S.
Annual mean.....	46	54	100	39	-20			37.0	162	23.4	55.9	85.1	19.1		78	2.88	74	3.01	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 5, 24, 25; Dec. 28, 29.	July 2, 20, 27.	1899	Jan. 1, 10-12; Feb. 9-13.	Aug. 12, 21.
1895	Jan. 5; Feb. 5-9.....	July 17.	1900	Feb. 2, 25-27.....	Aug. 11, 25; Sept. 2, 3.
1896	Jan. 5-7; Feb. 16-18; Dec. 24.	Aug. 5; Sept. 11.	1901	Jan. 3, 13-20; Feb. 24; Mar. 3.	June 29.
1897	Jan. 19, 31; Mar. 1.....	July 4, 5.	1902	Feb. 6; Dec. 9.....	None.
1898	Jan. 4, 28, 30; Feb. 2...	July 2, 3, 23.	1903	Jan. 19, 24; Feb. 18, 19; Dec. 18, 19, 26.	Do.

NEW YORK.

Mohawk Valley: ONEIDA COUNTY. Station: ROME.

W. H. BINGHAM, Observer.

[Established June, 1889. Latitude, 43° 11' N. Longitude, 75° 28' W. Elevation, 450 feet.]

Rome is situated near the geographical center of Oneida County, in the valley of the Mohawk River.

The thermometers are exposed in a shelter of the Weather Bureau pattern on the roof of the Government building. The rain gage is exposed on top of the same building. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	25	32	67	18	-19	33	17	4.2	13	4.2	4.0	26.2	15.0	E.
January.....	21	28	64	13	-22	29	13	3.4	13	1.9	5.7	16.7	6.0	E.
February.....	21	28	55	14	-20	28	11	3.7	11	2.9	4.8	23.3	18.0	W.
Winter mean.....	22	29		15				11.3	37	9.0	14.5	66.2		E.
March.....	30	38	75	22	-14	42	21	4.5	12	0.9	4.0	4.0	4.0	E.
April.....	45	55	86	35	15	48	42	2.8	9	2.6	4.0	T.	T.	W.
May.....	57	69	95	45	24	61	50	4.0	12	2.6	7.0	0.0	0.0	E.
Spring mean.....	44	54		34				11.3	33	6.1	15.0	4.0		W.
June.....	66	77	97	54	31	71	62	4.5	11	2.0	6.6	0.0	0.0	W.
July.....	70	80	97	59	42	73	66	4.8	11	3.4	3.2	0.0	0.0	W.
August.....	67	77	94	57	41	70	64	4.3	9	3.5	5.7	0.0	0.0	W.
Summer mean.....	68	78		57				13.6	31	8.9	15.5	0.0		W.
September.....	60	70	91	50	30	63	57	3.8	9	2.5	8.6	0.0	0.0	E.
October.....	49	57	84	40	20	53	43	3.5	9	2.0	7.3	T.	T.	W.
November.....	36	43	68	29	0	43	32	4.4	12	4.3	6.0		5.0	W.
Fall mean.....	48	57		40				11.7	30	8.8	21.9			W.
Annual mean.....	46	54	97	36	-22			47.9	131	32.8	66.8		18.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Dec. 28, 29.....	May 1; June 12, 16-18; July 3, 15, 21.	1899	Jan. 1, 9-11; Feb. 10-12; Dec. 31.	June 8, 14; July 4, 5; Aug. 19-22, 26.
1895	Jan. 4; Feb. 5, 6.....	May 5.	1900	Feb. 27, 28; Mar. 13....	July 17, 18; Aug. 7-12, 26, 27.
1896	Jan. 5, 6; Feb. 16, 17; Dec. 23.	July 1-3, 13, 22; Aug. 5, 6.	1901	Jan. 4, 20; Feb. 24.....	June 27-30; July 1-3, 5, 15-17.
1897	None.....	June 24; July 4-11.	1902	Feb. 6; Dec. 8.....	None.
1898	Jan. 1-3, 27-30; Feb. 1, 2, 16, 17.	June 8, 30; July 2, 3, 20, 24-27; Sept. 4.	1903	Jan. 19, 24; Dec. 19...	July 9; Sept. 13.

NEW YORK.

Champlain Valley: WARREN COUNTY. Station: GLENS FALLS.

Prof. C. L. WILLIAMS, Observer.

[Established by the Weather Bureau in October, 1891. Latitude, 43° 19' N. Longitude, 73° 40' W. Elevation, 340 feet (approximately).]

Glens Falls is at the southern border of Warren County, on the bank of the Hudson River, which at this point flows eastward through a broad valley. The country is nearly flat toward the south, and also northward as far as the French Mountain Range, on the eastern shore of Lake George.

The thermometers are exposed in an instrument shelter of the standard Weather Bureau pattern, which is located 16 feet west of the house and 16 feet southeast of a barn. They are 5 feet from the ground. The rain gage is exposed in an open garden 2 feet above the ground. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892 TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days, with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	24	32	65	17	-15	29	20	3.5	11	5.8	4.7	10.6	14.0	N.
January.....	19	28	52	11	-20	22	11	3.0	10	1.9	2.4	10.6	8.5	N.
February.....	20	30	51	11	-22	25	15	2.9	9	0.4	1.9	19.0	16.0	N.
Winter mean.....	21	30		13				9.4	30	8.1	9.0	46.2		N.
March.....	32	41	73	23	-11	42	25	3.9	13	3.3	4.3	13.5	16.0	N.
April.....	46	57	86	35	17	48	45	2.4	8	3.8	3.6	0.5	2.0	N.
May.....	58	70	92	46	20	60	56	2.6	14	3.0	3.8	0.0	0.0	SW.
Spring mean.....	45	56		35				8.9	35	10.1	11.7	14.0		N.
June.....	67	78	98	55	37	71	61	4.2	14	2.6	6.2	0.0	0.0	SW.
July.....	71	82	96	60	45	74	67	4.0	11	4.4	8.8	0.0	0.0	S.
August.....	68	78	95	57	38	71	62	4.2	12	4.7	5.4	0.0	0.0	S.
Summer mean.....	69	79		57				12.4	37	11.7	20.4	0.0		S.
September.....	60	71	94	50	30	63	54	3.2	11	2.8	1.2	0.0	0.0	N.
October.....	49	59	83	39	20	55	43	2.8	10	1.0	1.5	0.1	1.5	N.
November.....	36	44	73	28	5	42	32	3.8	13	1.3	10.0	3.1	6.0	N.
Fall mean.....	48	58		39				9.8	34	5.1	12.7	3.2		N.
Annual mean.....	47	56	98	36	-22			40.5	136	35.0	53.8	63.4	16.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 5, 17, 24, 25; Dec. 28, 30.	June 11, 17, 18, 23; July 1, 2, 13, 18, 19, 20, 27-29.	1899	Jan. 2, 10, 12; Feb. 11.	June 5; July 2-4, 21; Aug. 18-21.
1895	Jan. 5; Feb. 5-7.....	May 11, 30; June 1, 2, 10, 19, 20; July 9, 21; Sept. 11, 21-23.	1900	Feb. 2; Mar. 18.....	May 14, 15; June 27, 28; July 7, 16, 17; Aug. 11, 26.
1896	Jan. 6-8; Feb. 17, 18....	May 10; June 20; Aug. 5-11.	1901	Jan. 20.....	June 26-30; July 1-3, 15, 16, 24.
1897	Jan. 25.....	July 5-10; Sept. 10.	1902	Dec. 9, 10.....	None.
1898	Jan. 2, 4, 30, 31; Feb. 2, 3.	July 3.	1903	Jan. 19, 20; Feb. 18; Dec. 19, 27, 29, 31.	May 20; July 9, 10.

NEW YORK.

Lake Region: ERIE COUNTY. Station: BUFFALO.

DAVID CUTHBERTSON, Local Forecaster.

[Established by Signal Service on November 1, 1870. Latitude, 42° 53' N. Longitude, 78° 53' W. Elevation, 612 feet.]

Since its establishment the station has been within one-half a mile from the shore of Lake Erie, and, although located in 6 different buildings, it has remained within a circle, one-fourth of a mile in diameter. Open exposure to the prevailing winds, which here are from the west-southwest, and unobstructed view of the lake, have been of primary consideration in its location, and these have been gained to a most satisfactory degree since 1881. The surrounding country is comparatively low and level toward the north and west of the city; but toward the east and south, after a distance of 10 or 15 miles of fairly smooth and slowly rising surface, it becomes rolling, and soon rises into the western extremity of the central plateau and reaches an elevation of about 1,000 feet above the level of Lake Erie at a point about 35 miles south-southeast of the city.

The anemometer and wind vane are 43 feet above the roof of the building. Hazen's instrument shelter, containing the thermometers and thermograph, is built in a tower 13 feet above the roof of the building. The rain gage is placed on the main roof 30 feet from the instrument shelter.

Tabulated data are from the following periods of observation: Sunshine, fourteen years, February, 1890, to December, 1903; humidity, fifteen years, 1889 to 1903. Remainder of data is from the whole period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	30	36	63	24	9	38	20	3.4	18	3.1	8.6	16.3	11.4	72	1.39	70	1.48	68	24	W.
January.....	25	31	66	18	14	37	17	3.2	19	2.9	4.6	19.2	16.5	79	1.17	77	1.25	90	31	W.
February.....	24	31	64	18	13	33	13	3.0	17	1.6	1.7	16.4	18.0	79	1.07	77	1.20	125	42	SW.
Winter mean.....	26	33	.....	20	.....	.....	.....	9.6	54	9.6	14.9	51.9	.....	77	1.21	75	1.31	94	32	W.
March.....	30	38	74	24	4	41	20	2.7	16	3.0	5.1	8.7	15.0	76	1.41	73	1.54	180	49	SW.
April.....	42	50	84	35	11	51	35	2.4	12	1.0	4.7	3.8	8.9	71	2.18	68	2.24	222	55	SW.
May.....	54	62	89	46	28	62	40	3.2	13	3.2	3.4	0.1	5.0	72	3.26	69	3.34	252	55	SW.
Spring mean.....	42	50	.....	35	.....	.....	.....	8.3	41	7.2	13.2	12.6	.....	73	2.28	70	2.37	218	53	SW.
June.....	65	72	93	57	39	69	59	3.2	11	0.7	3.5	0.0	0.0	74	4.86	70	4.91	302	66	SW.
July.....	70	76	95	63	47	74	65	3.4	11	2.6	6.8	0.0	0.0	75	5.79	70	5.96	303	65	SW.
August.....	68	76	94	61	46	73	65	3.1	10	0.5	3.2	0.0	0.0	75	5.43	68	5.43	282	66	SW.
Summer mean.....	68	75	.....	60	.....	.....	.....	9.7	32	3.8	13.5	0.0	.....	75	5.36	69	5.43	296	66	SW.
September.....	62	70	95	55	35	71	58	3.2	11	4.5	7.4	0.0	0.0	75	4.31	70	4.44	226	60	SW.
October.....	51	58	86	44	24	60	45	3.2	13	3.0	6.9	0.3	5.5	74	2.91	70	3.06	165	48	SW.
November.....	39	45	70	37	2	48	31	3.4	19	1.3	4.4	6.5	9.4	75	1.98	73	2.08	80	27	W.
Fall mean.....	51	58	.....	45	.....	.....	.....	9.8	43	8.8	18.7	6.8	.....	75	3.07	71	3.19	157	45	SW.
Annual mean.....	47	54	95	40	14	.....	.....	37.4	170	29.4	60.3	71.3	18.0	75	2.98	71	3.08	191	49	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24, 25.....	None.	1899	Jan. 11, 30; Feb. 9-13..	July 24.
1895	Feb. 5-9.....	June 3, 9; July 19.	1900	Feb. 26.....	Sept. 1.
1896	Jan. 6; Feb. 16-18.....	None.	1901	Jan. 19.....	July 14, 15.
1897	Jan. 24.....	July 3, 4, 7, 8, 10.	1902	None.....	None.
1898	Feb. 1, 2.....	July 24.	1903	Feb. 17-19.....	Do.

NEW YORK.

Western Plateau: LIVINGSTON COUNTY. Station: AVON.

W. G. MARKHAM, Observer.

[Established by the Weather Bureau in August, 1895. Latitude, 42° 55' N. Longitude, 77° 47' W. Elevation, 585 feet.]

This station is located in the open country of the Genesee Valley bottom, 23 miles south of Lake Ontario, and about 100 rods east of the Genesee River, and 25 feet above its highest level. At high water the river flows over an area 1½ miles in breadth. The surface is gently undulating toward the east, while westward the hills rise to a considerable elevation. The valley is broad and open toward the south.

The shelter is of the standard Weather Bureau pattern, and is fastened to the north end of a workshop, attached to the observer's residence. The thermometers are 6 feet from the ground. The rain gage is mounted in an open space, on a fence post, 5 feet high, and is 150 feet from the house. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Aver- age depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	27	35	62	19	- 8	31	22	1.8	10	1.9	3.5	7.2	5.0
January.....	24	33	60	16	-10	27	22	1.9	8	1.4	1.7	8.6	4.8
February.....	23	31	61	15	-13	28	16	1.3	7	0.8	1.2	8.8	7.0
Winter mean.....	25	33		17				5.0	25	4.1	6.4	24.6	
March.....	35	47	81	26	-10	42	24	2.2	9	1.3	2.1	9.1	18.0
April.....	46	56	87	34	15	50	42	2.1	9	1.4	5.5	3.8	14.0
May.....	58	69	89	44	21	63	55	1.8	9	2.6	1.8	0.0	0.0
Spring mean.....	46	57		35				6.1	27	5.3	9.4	12.9	
June.....	66	78	95	53	33	69	62	2.5	8	0.8	2.2	0.0	0.0
July.....	72	84	102	60	37	74	68	3.6	12	2.3	3.2	0.0	0.0
August.....	68	80	97	56	38	74	64	3.1	7	0.6	4.5	0.0	0.0
Summer mean.....	69	81		56				9.2	27	3.7	9.9	0.0	
September.....	62	74	95	49	28	65	59	2.3	7	2.8	2.6	0.0	0.0
October.....	50	62	89	40	22	58	49	2.2	9	2.0	2.2	T.	0.2
November.....	39	48	73	30	9	45	34	2.2	9	1.3	1.3	3.3	5.0
Fall mean.....	50	61		40				6.7	25	6.1	6.1	3.3	
Annual mean.....	48	58	102	37	-13			27.0	104	19.2	31.8	40.8	18.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1896	November, December missing.	June 7, 20; July 1-3, 9, 22, 29; Aug. 5, 6, 8; Sept. 11.	1900	None.....	June 24, 26; July 3, 6, 11, 15-17, 29; Aug. 5-11, 25, 26; Sept. 1-3, 11.
1897	Mar. 1.....	June 24; July 3-5, 7-11, 18, 20-22; Aug. 3; Sept. 9, 10, 16.	1901	Feb. 3, 9, 23, 24.....	June 27-29; July 1, 2, 4, 14, 15, 17-19, 21, 22, 24, 28.
1898	None.....	June 30; July 2, 3, 8, 17, 18, 20, 23-25, 27-29; Sept. 1-4.	1902	None.....	None.
1899	Jan. 12; Feb. 11, 12...	June 5-7, 13, 14, 23; July 2-5, 21, 24, 25, 29; Aug. 2, 4, 11, 12, 17-21, 31; Sept. 3, 17.	1903	do.....	July 9.

NEW YORK.

Central Lake Region: CAYUGA COUNTY. Station: AUBURN.

A. H. UNDERWOOD, Observer.

[Established by the U. S. Weather Bureau in September, 1897. Latitude, 42° 55' N. Longitude, 76° 36' W. Elevation, 710 feet.]

Auburn is situated near the center of Cayuga County, at the northern extremity of Owasco Lake, and about 8 miles east of Cayuga Lake. The general contour of the country is rolling, broken by small hills.

The thermometers are well exposed in a shelter, 4 feet above ground, located in the back yard of the observer. The rain gage is attached to a fence, 20 feet from the shelter, the top of the gage being 3½ feet above the ground. Before September, 1897, the temperature means were computed from tri-daily observations; after that date from the daily extremes.

Temperature and precipitation data are included within the period of observation January 1, 1827, to December 31, 1903, with the years 1831, 1850-1859, 1866-1883, and 1890-1896, missing for temperature; and 1831, 1850-1883, and 1890-1896, for precipitation. The record of maximum and minimum temperatures and miscellaneous phenomena began in September, 1897.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	29	34	64	21	- 7	38	19	2.8	12	1.2	4.2	14.6	6.0	NW.
January.....	24	33	55	18	- 6	32	16	2.5	11	1.1	2.7	11.3	7.0	NW.
February.....	25	33	65	16	-10	37	15	2.2	10	1.8	2.1	14.8	12.0	NW.
Winter mean.....	26	33	.....	18	.....	.....	.....	7.5	33	4.1	9.0	40.7	.....	NW.
March.....	33	46	79	26	- 5	43	19	2.4	10	1.3	3.9	9.1	18.0	NW.
April.....	46	59	87	36	14	57	32	2.4	10	1.0	3.6	1.6	4.0	N.
May.....	57	71	91	46	25	64	40	3.5	12	1.2	5.1	T.	T.	N.
Spring mean.....	45	59	.....	36	.....	.....	.....	8.3	32	3.5	12.6	10.7	.....	N.
June.....	66	79	98	56	38	73	60	3.9	11	3.0	3.5	0.0	0.0	N.
July.....	71	84	99	63	43	78	64	3.7	11	2.5	2.1	0.0	0.0	N.
August.....	69	81	98	59	45	75	63	3.5	11	2.6	3.8	0.0	0.0	NW.
Summer mean.....	69	81	.....	59	.....	.....	.....	11.1	33	8.1	9.4	0.0	.....	N.
September.....	61	76	95	52	32	69	53	3.1	9	1.7	6.1	0.0	0.0	N.
October.....	50	65	90	43	25	60	41	3.5	11	2.4	6.4	0.4	2.0	N.
November.....	38	47	72	31	12	46	32	3.2	14	2.0	6.2	7.1	11.0	NW.
Fall mean.....	50	63	.....	42	.....	.....	.....	9.8	34	6.1	18.7	7.5	.....	N.
Annual mean.....	47	59	99	39	-10	.....	.....	36.7	132	21.8	49.7	58.9	18.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1897	.....	Sept. 9, 10.	1901	Jan. 3, 19, 20; Feb. 23, 24; Mar. 6.	June 6, 13, 14, 22, 25-30; July 1-4, 10, 13-18, 20-24, 28, 30; Aug. 21, 22; Sept. 6, 7.
1898	Jan. 3, 30; Feb. 2, 3; Dec. 14.	June 30; July 2, 3, 8, 20, 22, 24, 25, 27-29; Aug. 31; Sept. 1-4; Oct. 1.	1902	Feb. 5, 6, 16; Dec. 9, 14.	July 8, 14.
1899	Jan. 10-12, 30, 31; Feb. 9-13; Dec. 30.	May 1; June 4-7, 14, 23; July 2-5, 26, 28; Aug. 1, 4, 11, 12, 16-21, 26.	1903	Jan. 9, 19; Feb. 18, 19; Dec. 19.	May 18, 19; July 1, 9.
1900	Feb. 25, 27.	June 24, 26-28; July 3, 5-8, 11, 15-17, 20, 23, 24, 29; Aug. 5-11, 18, 23-27, 29, 31; Sept. 2, 3, 10, 11, 26; Oct. 5, 6.			

NEW YORK.

Eastern Plateau: OTSEGO COUNTY. Station: COOPERSTOWN.

G. POMEROY KEESE, Observer.

[Established 1854. Latitude, 42° 41' N. Longitude, 74° 57' W. Elevation, 1,300 feet.]

Cooperstown is situated in the valley at the southern end or foot of Otsego Lake, hills rising abruptly on the eastern and western sides of the town. The meteorological station is 200 feet southwest from the shore of the lake, and is sufficiently isolated from the buildings of the town to admit of a very free air circulation. The hills on the eastern and western sides of the valley are, respectively, one-half and three-fourths of a mile from the station.

The thermometers are exposed on the veranda posts of a northern piazza of the observer's residence 8 feet from the ground. The rain gage is 60 feet south of the house, where the air circulation is unobstructed. The top of the gage is 3 feet above the ground.

The record of temperature was kept during thirty-six years from readings of a Green standard thermometer, with which the instrument furnished by this Service early in 1890 was found to agree closely. The rain gage in use for thirty-six years was the Pike "conical" form, which, as compared with the standard gage of the Weather Bureau, is found to give a slightly deficient registration. The exposure of the instruments has been substantially the same during the entire period of the record.

The monthly mean temperatures were obtained from the daily extremes.

Tabulated data are for the following periods of observation: Maximum and minimum temperatures for fourteen years. The remaining tabulated temperature and precipitation data are for the period January 1, 1854, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	25	32	62	18	-15	34	15	2.8	11	3.3	4.3	13.1	10.0	S.
January.....	20	29	62	13	-21	32	10	2.6	11	1.7	4.4	14.0	13.0	S.
February.....	21	29	57	13	-23	32	10	2.5	11	0.8	2.9	18.7	14.0	S.
Winter mean.....	22	30	.....	15	.....	.....	.....	7.9	33	5.8	11.6	45.8	.....	S.
March.....	38	37	70	22	-15	40	18	2.8	13	2.3	4.2	12.8	8.0	N.
April.....	41	51	82	34	14	52	34	2.7	11	2.2	2.9	2.4	4.5	NW.
May.....	54	64	87	45	24	61	47	3.6	12	3.4	8.8	0.1	1.0	NW.
Spring mean.....	41	51	.....	34	.....	.....	.....	9.1	36	7.9	15.9	15.3	.....	NW.
June.....	64	73	90	55	35	72	57	4.2	12	1.0	4.9	0.0	0.0	N.
July.....	68	76	92	58	40	76	63	4.5	12	1.8	3.4	0.0	0.0	S.
August.....	66	74	90	56	38	72	60	4.4	11	5.8	6.0	0.0	0.0	N.
Summer mean.....	66	74	.....	56	.....	.....	.....	13.1	35	8.6	14.3	0.0	.....	N.
September.....	58	68	87	50	29	67	53	3.4	10	2.9	7.2	0.0	0.0	S.
October.....	47	56	80	40	20	54	41	3.3	11	2.4	5.9	0.7	3.0	S.
November.....	35	42	70	29	0	41	27	3.1	11	2.4	3.2	5.2	8.0	S.
Fall mean.....	47	55	.....	40	.....	.....	.....	9.8	32	7.7	16.3	5.9	.....	S.
Annual mean.....	44	53	92	36	-23	.....	.....	39.9	13.6	30.0	58.1	67.0	14.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 5, 24, 25.....	July 20, 28.	1899	Jan. 2, 11; Feb. 11, 12.	Aug. 21.
1895	Jan. 1, 5; Feb. 8, 8.	None.	1900	Feb. 27; Mar. 18.....	July 16, 17.
1896	Jan. 5, 6, 8, 12; Feb. 16-18.	Do.	1901	Feb. 24; Dec. 6.....	June 28, 29; July 2.
1897	Feb. 14.....	July 5.	1902	Feb. 6, 16; Dec. 9, 15..	None.
1898	Jan. 4, 28, 30, 31.....	July 3.	1903	Dec. 18, 19.....	Do.

NEW YORK.

Hudson Valley: ALBANY COUNTY. Station: ALBANY.

A. F. SIMS, Local Forecaster.

[Established by Signal Service December, 1873. Latitude, 42° 39' N. Longitude, 73° 45' W. Elevation, 24 feet.]

The Albany office of the United States Weather Bureau was located from December 22, 1873, to March 17, 1880, in the Dudley Observatory; from March 17, 1880, to October 1, 1884, in the Grey Building, 44 State street; from October 1, 1884, to December 31, 1903, in the United States custom-house and post-office building, corner of State and Broadway. All of these locations are in the vicinity of the west bank of the Hudson River. The elevation of the hills in this vicinity, on either the west or the east side of the Hudson, does not exceed 300 feet.

The thermometers are exposed in a standard shelter on the northeast tower of the post-office building, 102 feet above ground. The rain gage is located on the roof of the building, 99½ feet above ground. The anemometer cups are 113 feet above ground.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; sunshine, seven years; humidity, fifteen years. Remainder of data is from the whole period of observation, thirty-one years, January 1, 1874, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P.ct.	Gr.s.	P.ct.	Gr.s.	Hr.	P.ct.	
December.....	28	36	66	22	-17	39	17	2.7	12	1.0	6.2	10.0	17.0	83	1.41	80	1.55	93	34	
January.....	23	31	62	15	-24	31	14	2.6	13	4.0	4.4	12.8	16.2	83	1.07	79	1.23	124	43	
February.....	24	32	63	16	-18	33	15	2.6	12	4.7	4.1	14.0	15.0	81	1.15	78	1.27	168	59	
Winter mean.....	25	33	63	18	-18	34	16	7.9	37	9.7	14.7	37.7	15.0	82	1.21	79	1.35	128	45	
March.....	33	40	75	24	-8	43	23	2.8	13	1.0	2.2	11.1	22.9	80	1.55	75	1.71	186	55	
April.....	46	56	88	38	13	52	32	2.4	11	1.6	4.0	1.2	11.4	74	2.35	65	2.47	240	60	
May.....	59	69	93	50	29	66	56	3.0	13	2.5	3.6	T.	T.	73	3.66	65	3.86	279	60	
Spring mean.....	46	55	87	37	29	54	40	8.2	37	5.1	9.8	12.3	11.4	76	2.52	68	2.68	235	58	
June.....	68	78	99	59	40	73	63	3.7	13	3.6	4.5	0.0	0.0	75	5.26	69	5.51	300	65	
July.....	73	82	100	64	48	77	69	3.9	13	2.2	5.5	0.0	0.0	76	5.87	69	6.26	279	61	
August.....	71	80	98	62	42	75	65	4.0	11	3.3	3.8	0.0	0.0	75	5.43	67	5.70	248	58	
Summer mean.....	71	80	99	62	47	75	66	11.6	37	9.1	13.8	0.0	0.0	75	5.52	68	5.82	276	61	
September.....	64	72	96	55	33	71	58	3.2	10	1.5	3.2	0.0	0.0	81	4.65	74	4.86	240	64	
October.....	51	60	90	43	23	58	44	3.1	10	1.8	3.4	T.	0.3	84	3.08	75	3.28	186	55	
November.....	39	46	71	32	-10	44	32	2.9	12	0.7	4.4	4.7	10.0	83	2.12	78	2.22	120	39	
Fall mean.....	51	59	81	43	23	54	40	9.2	32	4.0	11.0	4.7	10.0	83	3.28	76	3.45	182	53	
Annual mean.....	48	57	100	40	-24	60	40	36.9	143	27.9	49.3	54.7	22.9	79	3.13	73	3.33	205	54	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 5, 6, 17, 24, 25; Dec. 30.	June 11, 16-18, 23; July 1, 2, 13, 18-20, 25, 27-29; Aug. 24.	1899	Jan. 1, 2, 10-12; Feb. 9-12, 15.	June 5-7, 14, 15, 20, 24; July 3, 4, 21, 26, 27; Aug. 18-21.
1895	Jan. 1, 3, 5; Feb. 1, 5-9; Dec. 13.	May 10, 30, 31; June 1, 2, 10, 19, 20; July 20; Aug. 11, 24; Sept. 11, 21-23.	1900	Feb. 1, 2, 26, 27; Mar. 17, 18.	May 14, 15; June 24, 27, 28; July 7, 16, 17, 23, 24, 29, 31; Aug. 6, 9-11, 25-27, 29, 30; Sept. 3, 6; Oct. 6.
1896	Jan. 5-8, 12; Feb. 16-18; Mar. 14; Dec. 24, 27, 28.	May 9, 10; June 20; July 2, 3, 12, 28-30; Aug. 4-12; Sept. 11.	1901	Jan. 19, 20; Feb. 2, 3; Dec. 6, 7.	June 26-30; July 1-3, 14-16, 21, 22, 24, 30; Sept. 6, 7.
1897	Jan. 13, 19, 31; Feb. 1, 14.	July 5-7, 9, 10; Sept. 9, 10.	1902	Jan. 1; Dec. 8-10, 14, 15.	May 23; July 8, 9.
1898	Jan. 2, 4, 30, 31; Feb. 2, 3; Dec. 14.	June 25; July 3, 8, 14, 20, 21, 29, 30; Aug. 24, 31; Sept. 1-4.	1903	Jan. 19, 20; Feb. 17-21; Dec. 19, 26, 27, 29.	May 18, 19; July 2, 8, 9, 25.

NEW YORK.

Western Plateau: CHAUTAUQUA COUNTY. Station: JAMESTOWN.

GEORGE H. ANDERSON, Observer.

[Established by the Signal Service in September, 1890. Latitude, 42° 6' N. Longitude, 79° 16' W. Elevation, 1,300 feet.]

The city of Jamestown is situated in the southeast corner of Chautauqua County, at the eastern extremity of Chautauqua Lake. The surrounding country is hilly, mainly a moraine formation, intersected by short valleys.

The shelter is of the standard Weather Bureau pattern, and is located in the back yard of the observer's residence, 40 feet from any building. The rain gage is exposed near the shelter, 40 feet from any obstruction to free air circulation, its top being 3 feet 4 inches above the ground. Mean temperatures before October, 1891, were computed from tri-daily observations; after that date mean temperatures were computed from the daily extremes.

The record of precipitation begins with January, 1851, but is much broken prior to 1895; temperature data are included within the period of observation 1891-1903, with the record from 1892-1895, inclusive, missing: maximum and minimum temperatures are for the period November, 1895, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	27	34	62	21	- 8	30	22	4.4	15	1.3	4.8	22.9	11.0	SW.
January.....	26	32	58	18	9	29	23	3.4	16	7.1	5.6	25.9	9.0	SW.
February.....	25	32	62	16	16	31	18	3.3	15	4.4	4.5	23.5	10.0	NW.
Winter mean.....	26	33		18				11.1	46	12.8	14.9	21.7		SW.
March.....	35	44	77	26	- 4	45	27	3.4	14	3.0	3.6	15.0	14.0	NW.
April.....	46	56	86	36	15	51	42	3.2	12	1.8	3.4	9.8	16.5	NW.
May.....	57	69	88	46	22	63	53	3.1	12	1.8	1.6	7.	0.1	NW.
Spring mean.....	46	56		36				9.7	38	6.6	11.6	24.8		NW.
June.....	64	77	88	53	34	67	61	3.7	13	3.7	5.0	0.0	0.0	SW.
July.....	70	80	95	60	42	72	69	5.2	12	2.5	2.2	0.0	0.0	NW.
August.....	67	78	90	57	40	72	64	3.6	9	2.4	7.2	0.0	0.0	SW.
Summer mean.....	67	78		57				12.5	34	8.6	14.4	0.0		SW.
September.....	61	72	89	51	28	64	59	3.5	9	4.4	2.2	0.2	2.0	SW.
October.....	51	61	84	42	20	58	46	3.5	10	6.7	4.9	0.3	1.0	SW.
November.....	39	47	70	32	6	45	33	3.9	14	1.8	4.7	11.3	7.0	SW.
Fall mean.....	50	60		42				10.9	33	12.9	11.8	11.8		SW.
Annual mean.....	47	57	95	38	-16			44.1	151	40.9	52.7	108.3	16.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD NOVEMBER 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1896	Feb. 17.....	None.	1900	None.....	July 4; Aug. 10-11.
1897	None.....	July 3-5, 8, 10.	1901	do.....	None.
1898	do.....	July 2, 3.	1902	Feb. 14, 16.....	Do.
1899	Feb. 9-12.....	None.	1903	None.....	July 3, 8-10.

NEW YORK.

Western Plateau: ALLEGANY COUNTY. Station: ANGELICA.

F. H. JACKSON, Observer.

[Established by United States Signal Service in November, 1888; equipped by State service in April, 1890. Latitude, 42° 18' N. Longitude 78° 1' W. Elevation, 1,420 feet.]

The village of Angelica is situated in a valley and almost surrounded by high hills, which rise abruptly toward the north. Toward the southwest the main valley extends for over a mile to the foot of the ridge in that direction. A deep and narrow valley opens through the hills toward the north.

The station is located on level ground on the premises of the observer, and the thermometers are exposed in a shelter of the standard Weather Bureau pattern, at a sufficient distance from trees and buildings to give a good exposure. They are 5 feet above the ground. A standard 8-inch rain gage is used, and is located about 15 feet from the instrument shelter. The mean temperatures before January, 1893, were computed from tridaily observations; after that date, from daily extremes.

The record of maximum and minimum temperatures began in January, 1890. Monthly mean temperatures include, besides data for the period of observation January 1, 1889, to December 31, 1903, an additional broken record of five years between 1855 and 1874.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	34	60	18	-26	34	19	2.7	11	4.0	2.8	13.0	14.0	W.
January.....	23	31	58	14	-23	32	12	2.8	13	2.0	3.5	16.6	10.0	W.
February.....	22	31	58	13	-27	31	13	1.8	11	1.6	2.3	14.1	13.0	W.
Winter mean.....	24	32		15				7.3	35	7.6	8.6	43.7		W.
March.....	30	42	80	22	-14	43	23	3.0	13	2.7	2.6	10.1	20.0	W.
April.....	44	55	85	32	6	48	40	3.0	12	0.9	3.6	5.1	21.0	W.
May.....	55	68	91	42	18	61	51	3.7	13	2.4	7.4	T.	0.5	W.
Spring mean.....	43	55		32				9.7	38	6.0	13.6	15.2		W.
June.....	64	77	93	51	29	71	59	4.1	12	1.8	4.5	0.0	0.0	W.
July.....	68	81	95	55	35	72	62	4.0	13	2.6	2.9	0.0	0.0	W.
August.....	65	78	94	53	32	70	62	4.1	12	2.0	6.7	0.0	0.0	W.
Summer mean.....	66	79		53				12.2	37	6.4	14.1	0.0		W.
September.....	59	71	91	46	25	63	54	3.0	10	2.9	8.7	T.	T.	W.
October.....	47	59	85	37	17	54	42	3.0	11	3.0	4.7	0.6	2.5	W.
November.....	36	45	72	28	-3	43	31	2.7	11	2.1	2.3	4.9	5.0	W.
Fall mean.....	47	58		37				8.7	32	8.0	15.7	5.5		W.
Annual mean.....	45	56	95	34	-27			37.9	142	28.0	52.0	64.4	21.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 5, 17, 22, 24, 25; Dec. 28, 29.	June 24; July 2, 18-20, 27.	1900	Mar. 12; Dec. 17.....	June 26; July 4-6, 15, 16, 17, 23, 24; Aug. 5-11, 25, 26; Sept. 1, 2, 11.
1895	Jan. 5; Feb. 3, 5-8, 12, 24.	May 30; June 1-4; Aug. 11.	1901	Jan. 20; Feb. 8, 24, 28; Dec. 16, 19-22.	June 26-29; July 1, 2, 4, 15, 17, 18, 21, 22, 24, 28; Aug. 20, 21.
1896	Jan. 5, 6; Feb. 17, 18.	Aug. 5, 6, 8.	1902	Jan. 20; Feb. 15, 16; Dec. 15.	July 10.
1897	Jan. 13, 31.....	July 4, 5, 7-10; Sept. 13.	1903	Jan. 19, 24.....	July 9-11.
1898	Jan. 30; Feb. 2.....	July 2, 3, 20, 24, 25.			
1899	Jan. 11, 31; Feb. 1, 9-12; Dec. 30.	June 5; July 3-5, 24; Aug. 19-21.			

NEW YORK.

Central Lakes: TOMPKINS COUNTY. Station: ITHACA.

R. G. ALLEN, Section Director.

[Established September, 1874. Latitude, 42° 27' N. Longitude, 76° 29' W. Elevation, 814 feet.]

This station is situated on the hill bordering the eastern side of Cayuga Lake Valley and immediately above the city of Ithaca, its distance from the head of the lake being about 1 mile and its elevation above the lake level 400 feet. The meteorological station has an open exposure toward the main valley on the west, while eastward, after a slight rise near the station, the surface is nearly flat along the course of Fall Creek; but numerous hills rise to heights varying from 300 to 500 feet above the general level, at a distance of a mile or more to the southeast of the station.

The station was opened September 16, 1874, under the direction of the late Prof. E. A. Fuertes, dean of the College of Civil Engineering. The office was located in a frame building, which stood on the east side of the campus about 50 feet west of the present site of the dairy building. In the spring of 1889 the office was removed to Lincoln Hall, the new building for the College of Civil Engineering, and has remained in that building until the present time.

The present elevation of the thermometers above ground is 71 feet. The top of the rain gage is 4.1 feet above ground.

Tabulated data are from the following periods of observation: Humidity and sunshine, four years, 1900-1903. Remainder of data are from the full period of observation, twenty-four years, January 1, 1879, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
														° F.	° F.	° F.	° F.			° F.	
December.....	29	36	64	22	-20	39	22	2.5	15	1.2	3.5	12.2	15.0	82	82	77	77	70	25	SE.	
January.....	24	32	64	16	-15	35	18	2.1	15	0.6	2.7	12.5	16.0	84	75	75	75	86	29	SE.	
February.....	25	32	62	17	-18	33	15	2.0	14	0.9	2.2	11.2	14.5	83	83	76	76	141	47	SE.	
Winter mean.....	26	33	64	18	-18	35	18	6.6	44	2.7	8.4	35.9	15.5	83	83	76	76	99	34	SE.	
March.....	32	40	75	23	-14	42	21	2.5	14	0.9	3.8	9.7	13.0	80	80	74	74	158	43	NW.	
April.....	45	55	87	35	13	50	41	2.2	12	1.8	3.3	3.1	16.0	76	76	65	65	115	49	NW.	
May.....	57	68	92	47	27	65	52	3.7	13	4.4	6.6	T.	0.5	70	70	67	67	248	57	NW.	
Spring mean.....	45	54	92	35	27	65	52	8.4	39	7.1	13.7	12.8	0.5	75	75	69	69	204	50	NW.	
June.....	66	78	96	56	36	70	61	3.6	12	2.8	4.9	0.0	0.0	76	76	69	69	273	60	NW. ^a	
July.....	70	81	96	60	40	75	66	3.8	13	4.0	1.2	0.0	0.0	77	77	69	69	308	67	SE.	
August.....	68	78	98	58	39	72	64	3.4	11	0.7	4.9	0.0	0.0	80	80	71	71	266	62	SE.	
Summer mean.....	68	79	98	58	39	72	64	10.8	36	7.5	11.0	0.0	0.0	77	77	70	70	282	63	SE.	
September.....	61	72	96	52	31	71	56	2.8	10	0.9	6.6	T.	T.	80	80	70	70	200	60	SE.	
October.....	50	59	87	42	17	56	43	3.1	12	0.3	4.7	0.1	1.5	80	80	73	73	172	50	SE.	
November.....	38	46	71	31	-1	45	33	2.6	13	1.6	1.9	5.3	15.0	82	82	75	75	86	29	SE.	
Fall mean.....	50	59	71	42	17	56	43	8.5	35	2.8	13.2	5.4	15.0	81	81	73	73	173	49	SE.	
Annual mean.....	47	56	98	38	-20	64	50	34.4	154	20.1	46.3	54.1	16.0	79	79	72	72	189	49	SE.	

^a Also SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 80° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 25.....	June 24; July 1, 3, 18-20, 27, 28.	1899	Jan. 11; Feb. 9-12....	June 5, 6, 20, 23 July 2-5, 21, 29; Aug. 11, 12, 17-21, 26.
1895	None.....	May 30; June 1, 2, 4, 10; July 7, 17; Sept. 11, 20-22.	1900	None.....	June 26, 28; July 6, 15-17, 20, 24; Aug. 5, 11, 25, 26.
1896	Jan. 6; Feb. 17, 18....	July 2, 3; Aug. 5, 8, 9; Sept. 11.	1901	.....do.....	June 26-30; July 1, 2, 4, 16-18, 21, 24, 28.
1897	None.....	July 5, 9-11; Sept. 9, 10, 16.	1902	.....do.....	None.
1898	.....do.....	June 30; July 2, 3, 8, 20, 24, 28; Sept. 1-4.	1903	.....do.....	July 9.

NEW YORK.

Hudson Valley: DUTCHESS COUNTY. Station: HONEYMEAD BROOK.

JAMES HAYATT, Observer.

[Established by Signal Service in January, 1884. Latitude, 41° 51' N. Longitude, 73° 42' W. Elevation, 450 feet.]

This station is situated about 1 mile southeast of the village of Stanfordville and about 4 rods distant from the tracks of the Newburgh, Dutchess and Connecticut Railroad. The valley through which this road passes opens toward the south-southwest into the Hudson Valley; hence it is thought that the meteorological conditions of the station are similar to those of the Hudson Valley north of the Highlands. The general surface rises for several miles east and southeast from the station to the high hills west of the Harlem Valley, while in its immediate vicinity the ground is broken by numerous irregular hills having a comparatively small elevation.

The thermometers are placed in an angle on the north side of the house, 5 feet above the ground, and are never reached by the sun. They are sheltered by board sides and bottom and sloping roof, the front being wholly open to the northwest and the back half open. The rain gage is located 70 feet southeast of the house and is 5 feet above the ground.

Mean temperatures obtained from the daily extremes.

Temperature data (except the record of maximum and minimum temperatures which began in 1890) are for the period of observation January 1, 1881, to December 31, 1903; precipitation from January, 1884, to December, 1903. The remaining tabulated data are for varying periods of shorter length.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wd.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	35	62	19	-13	36	21	3.5	10	3.3	5.4	9.0	10.0	SW.
January.....	23	32	60	16	-14	32	16	3.2	12	3.5	2.4	10.5	12.0	N.
February.....	25	33	60	16	-16	32	16	3.5	10	2.0	2.6	15.0	15.0	N.
Winter mean.....	25	33		17				10.2	32	8.8	10.4	34.5		N.
March.....	32	42	71	25	-10	42	24	3.2	12	2.8	2.6	10.3	9.0	N.
April.....	46	57	87	35	11	50	40	2.6	10	3.0	3.3	3.0	16.0	N.
May.....	58	69	92	46	26	62	52	3.7	12	3.2	4.4	T.	T.	SW.
Spring mean.....	45	56		35				9.5	34	9.0	10.3	13.3		N.
June.....	66	77	96	55	36	70	61	3.5	12	2.2	4.6	0.0	0.0	SW.
July.....	70	81	96	59	42	74	67	5.5	13	2.7	14.6	0.0	0.0	SW.
August.....	68	78	96	58	40	74	63	4.3	11	1.4	4.4	0.0	0.0	SW.
Summer mean.....	68	79		57				13.3	36	6.3	23.6	0.0		SW.
September.....	62	71	92	51	32	65	56	3.8	9	3.3	1.6	T.	T.	SW.
October.....	50	59	84	41	21	56	45	3.3	9	2.5	0.9	T.	T.	SW.
November.....	38	46	69	30	5	44	34	3.1	10	4.6	5.1	3.0	5.0	SW.
Fall mean.....	50	59		41				10.2	28	10.4	7.6	3.0		SW.
Annual mean.....	47	57	96	38	-16			43.2	130	34.5	51.9	50.8	16.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 5, 6, 14, 16, 17, 24, 25; Dec. 28, 29.	June 23; July 13, 19, 20, 27-29; Aug. 25; 25; Sept. 10.	1899	Jan. 1, 2, 11; Feb. 9, 13, 15.	June 5, 8, 14, 15, 20; July 3, 4.
1895	Jan. 1, 5, 20; Feb. 1, 5-9, 12, 16, 23, 24; Dec. 13.	May 31; June 1-3; Aug. 24; Sept. 21-23.	1900	Feb. 1-3, 27, 28; Mar. 18; Dec. 18.	May 15; June 27, 28; July 6, 7, 10-18; Aug. 6, 10, 11, 26; Sept. 6.
1896	Jan. 6-8, 12; Feb. 17, 18, 22; March 13, 14, 24; Dec. 24, 25, 27, 28.	May 10; Aug. 9.	1901	Jan. 19, 20; Feb. 1-3, 8; Dec. 7.	June 27-30.
1897	Feb. 1, 5, 14; Dec. 25, 29.	July 6, 10.	1902	Jan. 1, 2, 12; Dec. 6, 9, 10, 15, 28.	None.
1898	Jan. 2, 4, 30, 31; Feb. 2-4; Dec. 14.	July 3, 4, 20, 21, 30.	1903	Jan. 9, 14, 19, 20; Feb. 18, 20, 21; Dec. 17, 19, 26-30.	May 20; July 9, 10.

NEW YORK.

Eastern Plateau: ORANGE COUNTY. Station: PORT JERVIS.

Prof. JOHN M. DOLPH, Observer.

[Established by the Signal Service in November, 1880. Latitude, 41° 21' N Longitude, 74° 40' W Elevation, 470 feet.]

Port Jervis is situated between the Delaware and Neversink Rivers, at a short distance north of their point of junction. The valley of the Delaware makes an abrupt turn at this point, from the southeast to the southwest, the Neversink River entering from the northeast at the bend. The surface rises gradually toward the north in the vicinity of the station, which is about 50 feet above the river surface. Beyond the city limits, high hills close in abruptly about the valley.

The thermometers are exposed in a louvered shelter, built substantially, after the pattern employed by the Weather Bureau. The shelter is located in a garden, about 25 feet from buildings to the north and southwest. The thermometers are 5 feet above the ground. The rain gage is mounted in an unobstructed position, on top of a post, 9 feet above the ground. The mean temperatures were obtained from the daily extremes.

Tabulated data are included within the period of observation January 1, 1880, to December 31, 1903. The record is much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow			
												Average depth.	Greatest depth in 24 hours.		
December.....	28	37	63	20	-11	36	23	3.6	10	1.9	3.9	11.2	11.0	NW.	
January.....	25	33	62	17	-12	33	17	3.4	10	2.6	3.0	10.1	10.0	NW.	
February.....	26	34	60	18	-12	33	14	3.7	9	2.7	4.4	15.0	14.0	NW.	
Winter mean.....	26	35		18				10.7	29	7.2	11.3	36.3		NW.	
March.....	34	44	73	26	8	45	24	3.5	12	2.9	3.7	9.6	13.0	NW.	
April.....	47	60	92	36	14	51	44	3.1	9	4.2	3.5	2.1	10.0	NW.	
May.....	59	72	94	47	26	65	52	4.2	12	1.2	1.0	0.0	0.0	NW.	
Spring mean.....	47	59		36				10.8	33	8.3	8.2	11.7		NW.	
June.....	67	79	96	56	38	71	62	4.4	12	2.3	13.8	0.0	0.0	NW.	
July.....	71	82	103	61	42	77	66	5.6	13	3.9	4.5	0.0	0.0	NW.	
August.....	69	79	99	59	40	74	65	4.4	11	3.3	8.2	0.0	0.0	NW.	
Summer mean.....	69	80		59				14.4	36	9.5	26.5	0.0		NW.	
September.....	63	74	95	52	32	69	58	3.6	10	2.5	1.5	0.0	0.0	NW.	
October.....	51	61	88	41	20	57	45	3.6	9	1.7	10.6	0.0	T.	NW.	
November.....	39	48	73	30	8	45	33	3.1	10	2.5	2.0	3.4	7.0	NW.	
Fall mean.....	51	61		41				10.3	29	6.7	14.1	3.4		NW.	
Annual mean.....	48	59	103	39	-12			46.2	127	31.7	60.1	51.4	14.0	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903

Year	Minimum below 0°.	Maximum 90° or above.	Year	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 17, 24, 25; Dec. 20.	June 23; July 13, 19, 20, 27, 28.	1900	Jan. 30; Feb. 2, 3, 27, 28; Mar. 18; Dec. 17.	May 14, 15; June 28; Sept. 3, 5, 6; July 6, 7, 16, 18, 21, 24; Aug. 6-12, 25, 27, 30, 31.
1895	Jan. 5, 31; Feb. 1, 3, 5-9, 16.	May 30, 31; June 1-3, 20; July 20; Sept. 11, 21-23.	1901	Jan. 20; Feb. 1; Mar. 7; Dec. 6, 7.	June 6, 12, 25-30; July 1, 4, 16, 21, 22, 29, 30; Sept. 6, 7.
1896	Jan. 6-8; Feb. 17, 18; Mar. 13, 14, 24; Dec. 28.	May 9, 10; Aug. 5-12.	1902	Jan. 31; Feb. 6; Dec. 10, 14, 15.	April 22; May 23; June 3; July 9, 14.
1897	Jan. 31; Feb. 1, 14.	July 5, 6, 9, 10.	1903	Jan. 20; Feb. 18-21; Dec. 19, 27, 29, 30.	May 18-21; July 8-10; Aug. 25; Sept. 14, 15.
1898	Jan. 30, 31; Feb. 3, 4; Dec. 14.	June 25; July 1-4, 8, 15, 17, 29, 30; Aug. 24; Sept. 1-4.			
1899	Jan. 2, 3, 11, 12; Feb. 9-11, 15; Dec. 31.	May 1, 2; June 5-7, 14, 20; July 3, 4, 27; Aug. 21.			

NEW YORK.

Atlantic Coast District: NEW YORK COUNTY. Station: NEW YORK.

E. H. EMERY, District Forecaster.

[Established by Signal Service November 1, 1870. Latitude, 40° 43' N. Longitude, 74° W. Elevation, 38 feet.]

The Weather Bureau station is located in the business section of the city, corner of Broadway and Pine streets, near the southern extremity of Manhattan Island. It is about one-half mile distant from the Battery and northern end of New York Bay, one-half mile from East River and about one-fourth of a mile from North or Hudson River.

The surrounding country, both on the island of Manhattan and on the opposite shores of the East and Hudson rivers, is comparatively level. On account of the presence of many buildings of the "skyscraper" variety, the highest of which towers nearly 400 feet above the ground, a bird's-eye view of the lower part of the island of Manhattan presents an appearance far from level, and this artificial feature of the topography has necessitated the exposure of the wind instruments at an unusual height above ground in order to obtain satisfactory results.

Though located in several different buildings since its establishment, the station has not at any time been more than one-fourth of a mile from its present location, but the height of the buildings has varied considerably and consequently the elevation of the instruments has not been at all uniform.

Tabulated data are from the following periods of observation: All maximum and minimum temperature data, thirty-two years; snowfall, nineteen years; humidity fifteen years; sunshine, ten years. Remainder of data is from full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	In.	P. ct.	Gr s.	P. ct.	Gr s.	151	52			
December.....	34	41	68	28	-6	42	25	3.4	11	1.9	1.8	5.9	13.0	75	1.65	71	1.75	151	52	NW.
January.....	30	37	67	24	-6	40	23	3.8	12	5.6	5.4	8.7	11.9	76	1.42	72	1.59	158	53	NW.
February.....	31	38	69	24	-6	40	23	3.9	11	0.8	3.1	11.5	17.8	75	1.39	71	1.56	173	58	NW.
Winter mean.....	32	39	68	25	-6	41	23	3.7	34	8.3	10.3	26.1	.....	75	1.49	71	1.63	161	54	NW.
March.....	38	45	72	30	3	48	29	4.1	13	2.8	4.1	8.2	16.5	74	1.08	69	1.89	202	54	NW.
April.....	48	57	90	41	20	55	41	3.3	11	2.9	5.9	0.9	3.0	70	2.48	65	2.66	230	57	NW.
May.....	60	68	95	52	34	65	54	3.2	11	2.0	3.2	T.	T.	73	3.67	69	3.94	252	56	NW.
Spring mean.....	49	57	89	41	24	56	49	3.5	35	7.7	13.2	9.1	.....	72	2.61	68	2.83	228	56	NW.
June.....	69	77	97	61	47	72	64	3.3	11	2.6	2.4	0.0	0.0	76	5.13	71	5.45	271	60	SW.
July.....	74	82	99	67	50	78	70	4.5	13	4.4	9.6	0.0	0.0	77	6.14	70	6.39	260	57	SW.
August.....	73	80	96	66	51	77	69	4.5	10	4.1	3.4	0.0	0.0	78	6.06	73	6.38	258	60	NW.
Summer mean.....	72	80	97	65	51	76	71	4.1	34	11.1	15.4	0.0	.....	77	5.78	71	6.07	263	59	SW.
September.....	66	74	100	59	40	72	61	3.5	9	1.0	7.4	0.0	0.0	79	5.19	73	5.45	225	60	NW.
October.....	56	63	88	48	31	61	50	3.7	10	4.0	2.5	T.	T.	77	3.38	71	3.57	180	52	NW.
November.....	44	51	74	38	7	50	37	3.6	10	3.6	9.8	1.8	8.8	77	2.27	72	2.46	150	51	NW.
Fall mean.....	55	63	87	48	19	61	49	3.6	29	8.6	19.7	1.8	.....	78	3.61	72	3.83	185	54	NW.
Annual mean.....	52	59	100	45	-6	64	54	44.8	132	35.7	58.6	37.0	17.8	76	3.37	71	3.59	209	56	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	None.....	June 11, 22, 23; July 13, 19-21, 25, 26, 29, 31; Aug. 8; Sept. 10.	1899	Feb 9-11.....	June 6-8; July 27; Aug. 5.
1895	Feb. 6, 8.....	May 31; June 1-3; Aug. 20; Sept. 12, 21-23.	1900	None.....	June 27, 28; July 4, 6, 7, 15-18; Aug. 6-11, 26, 27; Sept. 6.
1896	Jan. 6; Feb. 17.....	April 18; May 9, 10; Aug. 6-12.	1901	.....do.....	June 26-30; July 1-3, 5, 21-23, 29, 30.
1897	None.....	Sept. 10, 11.	1902	.....do.....	July 9, 14.
1898	.....do.....	July 1, 3, 4, 15; Aug. 31; Sept. 1-3.	1903	.....do.....	May 20; July 1, 2, 9, 10, 30.

NEW YORK.

Coast Region: SUFFOLK COUNTY. Station: SETAUKET.

SELAH B. STRONG, Observer.

[Established by Signal Service in December, 1889. Latitude, 40° 57' N. Longitude, 73° 5' W. Elevation, 40 feet.]

This station is situated 1 mile northeast of Setauket post-office, upon a neck of land projecting into the estuaries of Long Island Sound. The Oldfield light, a prominent point of the northern coast of Long Island, is about 1 mile distant toward the northwest. The observer's house stands on ground 40 feet above sea level, with an open exposure on all sides, excepting the northeast, where Cedar Grove stands on a slight elevation.

The instrument shelter is fastened to a window casing on the north side of the house. It is louvered on three sides, with slat work at the bottom, the sides being open. Its height above ground is 6 feet, and the distance from the window 4 inches. The roof of an open piazza prevents the rays of the afternoon sun from reaching the shelter, while a grove toward the east has a similar effect in the morning.

The rain gage stands upon nearly level ground, and is well removed from obstructions to free air circulation. Its height above the ground is 12 inches. Mean temperatures were obtained from the daily extremes.

Observations of temperature and rainfall have been made continuously at this station since 1885. The record of maximum and minimum temperatures is from January, 1890, to December, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	41	62	28	3	42	30	3.9	10	1.6	6.6	4.3	6.0	W.
January.....	31	38	64	25	-1	39	22	4.0	11	1.5	3.8	7.8	29.0	W.
February.....	30	36	64	26	-5	38	24	4.3	10	6.5	2.6	9.3	9.0	W.
Winter mean.....	32	38		26				12.2	31	9.6	12.0	21.1		W.
March.....	37	44	69	31	8	45	31	4.7	12	4.8	2.8	4.5	8.0	W.
April.....	47	56	87	39	23	50	45	3.4	9	1.0	2.0	0.8	3.0	W.
May.....	58	67	91	49	34	62	55	3.6	10	3.1	5.4	0.0	0.0	W.
Spring mean.....	47	56		40				11.7	31	8.9	10.2	5.3		W.
June.....	67	76	93	58	45	70	61	2.9	8	4.1	2.8	0.0	0.0	W.
July.....	72	80	98	64	50	75	69	4.7	10	2.7	18.2	0.0	0.0	S.
August.....	71	78	95	64	52	73	66	4.3	9	2.4	5.0	0.0	0.0	S.
Summer mean.....	70	78		62				11.9	27	9.2	26.0	0.0		S.
September.....	65	73	93	58	42	68	62	3.6	8	3.6	1.2	0.0	0.0	S.
October.....	54	62	86	48	31	59	50	4.7	8	2.9	1.8	T.	T.	NW.
November.....	44	51	69	38	16	49	40	4.3	9	3.2	5.8	2.2	6.0	W.
Fall mean.....	54	62		48				12.6	25	9.7	8.8	2.2		NW.
Annual mean.....	51	58	98	44	-5			48.4	114	37.4	58.0	28.9	29.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	None.....	June 23; July 13, 20, 21, 28, 29.	1900	None.....	May 15; June 27-29; July 7, 16-18; Aug. 10, 11.
1895	Feb. 6.....	June 1, 2; Sept. 12, 21-23.			
1896	Jan. 6; Feb. 17.....	Aug. 7, 9, 11, 12.	1901	.....do.....	June 28, 30; July 1-3.
1897	None.....	None	1902	.....do.....	None.
1898	.....do.....	June 25; July 1, 3, 4; Sept. 3.	1903	.....do.....	July 10.
1899	Feb. 10, 11.....	June 6, 8.			

NEW JERSEY.

By EDWARD W. MCGANN,
Section Director.

NEW JERSEY.

New Jersey is on the Atlantic slope of the continent and is divided into four climatic districts, viz, the Highlands and Kittatinny Valley, the red sandstone plain, the southern interior, and the seacoast. Beginning at the northwest, the Kittatinny, or Blue Mountain, is a remarkably level-topped and narrow range, which extends across the State from the New York State line to the Delaware Water Gap. At High Point, the most northern point of the State, it is 1,804 feet high, which is the greatest elevation of the State.

The Kittatinny Valley, 10 to 13 miles wide, is shut in by the Kittatinny Mountains on the northwest and by the Highlands on the southwest. It is characterized by high, rolling hills and fertile valleys.

The Highlands occupy that part of the zone which crosses New Jersey in a general north-northeast and southwest direction. Its surface is hilly, mountainous, and is made up of several parallel ridges, separated by deep and generally narrow valleys.

The red sandstone plain is made by the shales and sandstones of the Triassic age. The Highlands stand on its northmost border; on the southeast it merges into the clays and marls of the Coastal Plain. It is 60 miles long and 30 miles wide at the Delaware River. The larger part of Passaic, Somerset, Morris, Hunterdon, Mercer, Middlesex, Union, Essex, Hudson, and Bergen counties are in it. It has a breadth of 15 to 30 miles, and stretches south-southwest and west-southwest to the Delaware River. Its surface is diversified by gentle swelling ridges and by jagged and steeply sloping trap rock hills and mountains.

The southern interior.—In the southern part the nearness to the waters of the ocean on the east and to Delaware Bay on the west and southwest exerts a modifying influence. The elevations above ocean level are so inconsiderable that they may be disregarded altogether. The nature of the surface and the character and extent of the forest disturb but slightly the climate as determined by latitude, by proximity to the sea, and by prevailing winds. Under this head all of the southern part of the State is included except the narrow belt bordering the ocean and part of Cape May, which make the fourth climatic province. There are no rocky outcrops nor any steep slopes as in the northern part of the State. The surface is gently rolling to hilly, and the elevations have no measurable effect upon temperature.

Seacoast.—That part of the State which borders the ocean, and is near enough to be directly exposed to the ameliorating influence of its waters, is designated as the seacoast. It is difficult to define its limits as it merges into that of the southern interior on the west and northwest. The influence of the ocean's waters is felt very decidedly to a distance of 4 to 8 miles from the line of beach from Sandy Hook to Cape May.

TABLE OF NORMAL TEMPERATURES FOR THE SEVERAL CLIMATIC DIVISIONS OF THE STATE.

[Degrees Fahrenheit.]

Division.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Highlands and Kittatinny Valley.....	26.5	26.7	35.5	48.0	59.0	67.9	71.9	70.2	63.6	51.8	40.8	31.0
Red sandstone plain.....	29.1	30.0	37.9	49.1	60.4	69.8	74.1	72.5	65.8	53.8	42.8	33.1
Southern interior.....	31.5	32.0	39.8	50.5	61.6	70.8	75.0	73.3	66.9	55.2	44.5	35.1
Seacoast.....	30.0	30.6	38.3	48.8	59.1	68.6	73.3	72.8	67.4	56.5	45.4	35.9

	Year.	Seasons.				March of the seasons.			
		Spring.	Summer.	Autumn.	Winter.	Winter to spring.	Spring to summer.	Summer to fall.	Fall to winter.
Highlands and Kittatinny Valley.....	49.3	47.5	70.0	52.1	28.1	19.4	22.5	-17.9	-24.0
Red sandstone plain.....	51.5	49.1	72.1	54.1	30.7	18.4	23.0	-18.0	-23.4
Southern interior.....	53.0	50.6	73.0	55.5	32.9	20.1	22.4	-17.5	-22.6
Seacoast.....	52.8	48.9	71.6	56.4	34.4	14.5	22.7	-15.2	-22.0

ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES.

Division.	Maximum.	Minimum.	Division.	Maximum.	Minimum.
Highlands and Kittatinny Valley.	102°, July.....	-34°, January.	Southern interior.....	106°, July.....	-17°, January.
Red sandstone plain.....	107°, July.....	-20°, January.	Seacoast.....	102°, July.....	-7°, February.

The figures in the above tables are taken from observations made by the voluntary observers of the Service for each station having a continuous record of ten years and over, and show the gradual increase in the mean temperature of the months and seasons and of the year as we go from north toward the south. It will be noticed that while the range of temperature in all the districts is great, yet the difference in the seasons is slight and not near so great as the individual months.

The mean annual temperature ranges from 49.2° at Dover to 55.4° at Bridgeton, a difference of 6.2°, almost corresponding to 3° of latitude or slightly more than the difference between the extreme north and south ends of the State.

The difference in the mean temperature in the spring months has a marked effect upon vegetation, and the flowering of fruit trees is from two to three weeks earlier in the extreme southern part of the State than on the Highlands. The small fruits also come earlier and are marketed before the picking begins in the central and northern counties. Early vegetables are produced in the southern part of the State as early as in Maryland. Melons, sweet potatoes, and other semitropical products, which thrive so well in the southern and central counties, are scarcely attempted in the extreme north.

Sea breezes.—Along the coast there is a belt of varying breadth in which the general direction of the wind is interrupted during the summer months by the inflowing currents of sea air, which are known as sea breezes. They are periodic, coming daily, with rare exceptions. This movement begins usually about midday and gradually increases in force until about 3 o'clock in the afternoon. It then decreases gradually until about nightfall, when the off-shore wind takes its place. This is one of the most striking features of the shore, which moderates the heat and makes the shore resorts so attractive.

Rain and snow.—The greater part of the annual precipitation is in the form of rain, which falls during the passage of storm areas moving across the Lake region and down the St. Lawrence Valley. The duration of these storms varies from a few hours, as in the case of thunderstorms of summer, to one, two, or three days in the more slowly moving areas of low pressure. During the colder months, December to March, the precipitation is mostly in the form of snow, especially in the northern portion. In the extreme south there is more rain, even in the winter months, than snow. The warm season of the year is marked all over the State by the occurrence of thunder storms, which move rapidly from the northwest to the southeast. They are more frequent during the months of July and August and more common in the late afternoon than in the morning hours of the day.

From observations made at 31 stations, 5 in the Highlands and Kittatinny Valley, 11 in the red sandstone plain, 11 in the southern interior, and 4 on the seacoast, all of which have a continuous record for ten years and over, we give the following table:

MONTHLY AND ANNUAL PRECIPITATION, INCLUDING MELTED SNOW.

Division.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>	<i>In.</i>
Highlands and Kittatinny Valley.	3.5	4.3	4.0	3.5	4.6	3.5	5.4	4.9	4.0	3.7	3.7	3.9	49.1
Red sandstone plain.	3.9	4.1	4.1	3.4	4.3	3.7	5.2	4.6	4.0	3.5	3.8	3.8	48.4
Southern interior.	3.6	4.1	4.2	3.4	4.3	3.4	4.7	4.2	3.8	3.8	3.6	3.6	46.7
Seacoast.	3.9	3.9	4.4	3.4	3.5	3.4	4.6	4.6	3.8	3.8	3.6	3.8	46.6
Normal for the State.	3.7	4.1	4.2	3.4	4.2	3.5	5.0	4.6	3.9	3.7	3.7	3.8	47.7

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Atlantic.	Atlantic City.	Southern coast.	209	Middlesex.	New Brunswick.	Red sandstone plain.	205
Bergen (see New York, N. Y.).		Northeastern.		Monmouth.	Asbury Park.	Northern coast.	206
Burlington.	Moorestown.	Southern interior.	207	Morris.	Dover.	Highlands and Kittatinny Valley.	204
Camden (see Moorestown).		do.					
Cape May (see Atlantic City).		Southern coast.		Ocean (see Asbury Park).		Central coast.	
Cumberland.	Vineland.	Southern interior.	208	Passaic (see Port Jervis, N. Y.).		Northern.	
Essex (see New York, N. Y.).		Northeastern.		Salem (see Vineland).		Southern interior.	
Gloucester (see Vineland).		Southern interior.		Somerset (see New Brunswick).		Red sandstone plain.	
Hudson (see New York, N. Y.).		Northeastern.		Sussex (see Dover).		Northern interior.	
Hunterdon (see New Brunswick).		Northern interior.		Union (see New York, N. Y.).		Northern coast.	
Mercer (see Moorestown).		Central.		Warren (see Dover).		Northern interior.	

STATE SUMMARY.

Station.	Number.	Temperature.							
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number days with—
		°F.	°F.	°F.	°F.		°F.		
Dover.	1	49	60	39	102	July, 1901.	-13	January, 1893.	16
New Brunswick.	2	52	60	45	106	do.	-12	January, 1873.	27
Asbury Park.	3	52	60	44	102	July, 1898.	-10	February, 1899.	10
Moorestown.	4	52	79	38	103	September, 1881.	-15	January, 1881.	17
Vineland.	5	53	64	43	105	July, 1901.	-13	February, 1899.	29
Atlantic City.	6	52	58	46	99	July, 1880.	-7	do.	2

Station.	Number.	Frost.					Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.	
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.						
						Inches.	Inches.	Inches.	Inches.	Inches.	
Dover.	1	Oct. 4	May 10	Sept. 15	May 29	51.2	11.5	15.0	11.9	12.8	
New Brunswick.	2	Oct. 16	Apr. 16	do.	do.	48.0	11.7	14.0	11.1	11.2	
Asbury Park.	3	Oct. 21	Apr. 19	Oct. 3	May 29	48.1	12.0	13.8	10.9	11.4	
Moorestown.	4	Oct. 20	Apr. 23	do.	May 15	45.6	11.0	13.0	10.9	10.7	
Vineland.	5	Oct. 18	Apr. 17	Oct. 2	May 13	47.3	11.3	13.0	10.9	12.1	
Atlantic City.	6	Nov. 4	Apr. 11	Oct. 1	Apr. 25	42.0	9.8	11.3	10.1	10.8	

NEW JERSEY.

Highlands and Kittatinny Valley: MORRIS COUNTY. Station: DOVER.

WILLIAM C. HARRIS, Observer.

[Established 1885. Latitude 40° 50' N. Longitude, 74° 33' W. Elevation, 575 feet.]

This station is located in the northern portion of Morris County. The station was equipped with standard instruments by the New Jersey weather service January 1, 1891. The maximum and minimum thermometers are exposed in a lattice shelter in the southwest corner of a large lot which surrounds the dwelling of Mr. Harris. The height of the instruments above ground is 4½ feet. The rain gage is about 10 feet west of the shelter and has a good open exposure. The top of the gage is 2.2 feet above ground.

From January, 1885, to December, 1890, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; from January, 1891, to December, 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEAN, JANUARY 1, 1885, TO DECEMBER 31, 1905.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	31	39	62	22	- 6	39	23	4.0	9	3.0	5.2	6.4	13.5
January.....	27	35	59	18	-13	37	18	4.5	10	4.0	4.8	11.2	9.5
February.....	27	36	59	18	-10	36	17	4.3	9	0.8	4.0	17.0	9.0
Winter mean.....	28	37		19				12.8	28	7.8	14.0	34.6	
March.....	35	46	74	27	- 4	45	27	4.0	11	2.1	5.5	7.9	20.0
April.....	47	60	92	36	14	52	44	3.3	9	5.2	4.3	1.6	0.0
May.....	59	71	99	47	28	63	56	4.2	11	2.7	0.4	0.0	0.0
Spring mean.....	47	59		37				11.5	31	10.0	10.2	9.5	
June.....	67	80	100	55	40	70	61	4.0	10	3.9	15.0	0.0	0.0
July.....	72	84	102	60	43	76	67	5.7	12	4.0	5.5	0.0	0.0
August.....	70	82	100	58	40	75	64	5.3	10	2.4	9.4	0.0	0.4
Summer mean.....	70	82		58				15.0	32	10.3	29.9	0.0	
September.....	63	75	99	51	30	67	58	4.1	8	0.6	3.4	0.0	0.0
October.....	51	63	89	40	19	57	46	3.9	9	4.2	10.8	0.0	0.0
November.....	41	50	72	31	8	45	35	3.9	9	2.5	1.3	2.8	5.0
Fall mean.....	52	63		41				11.9	26	7.3	15.5	2.8	
Annual mean.....	49	60	102	39	-13			51.2	117	35.4	69.6	46.9	20.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 97° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 26, 29; Feb. 5, 7, 14, 16, 17, 24, 25, 27; Dec. 24, 27, 29.	July 20, 28, 29.	1900	Jan. 1, 4, 9, 26-31; Feb. 2-4, 25-28; Mar. 12, 13, 17, 18.	July 4, 15, 16, 17; Aug. 6, 7, 9-12, 27, 31.
1895	Jan. 1, 2, 5, 25, 29-31; Feb. 1, 3, 6-9, 12, 18, 23, 24; Dec. 4, 12, 19.	May 10, 30, 31; June 1-3; July 21; Sept. 20-23.	1901	Jan. 3, 4, 19, 20, 27; Feb. 1-3, 9, 11, 23, 24, 28; Mar. 1, 6, 7; Dec. 6, 7, 18, 20-22.	June 26, 29, 30; July 1, 2, 29.
1896	Jan. 2, 4-7, 12, 16; Feb. 16; Mar. 13-15, 18, 24, 25; Dec. 4, 21, 23-25, 27-29.	June 20; Aug. 5, 13.	1902	Jan. 1, 2, 4-6, 13, 17, 18, 20, 23-31; Feb. 3-8, 11, 19; Dec. 9, 10, 14, 15, 28, 29.	July 9.
1897	Jan. 12, 13, 19, 20, 25, 26, 31; Feb. 1, 5, 13, 14; Dec. 25, 28, 29.	July 6, 9, 10; Sept. 9-11.	1903	Jan. 8-14, 18-20, 24; Feb. 17-21, 23; Dec. 12, 18, 19, 26-30.	May 18-20; July 9.
1898	Jan. 1, 2, 4, 29-31; Feb. 1-5, 7; Dec. 13, 14, 16.	July 1, 3, 4, 21; Sept. 12.			
1899	Jan. 1-3, 10-12, 19, 20, 27, 28, 30; Feb. 1, 2, 8-16; Dec. 29-31.	June 5-8, 15, 24; July 3, 4, 22, 27; Aug. 21.			

NEW JERSEY.

Central Section: MIDDLESEX COUNTY. Station: NEW BRUNSWICK.

CHARLES V. MEYERS, Observer.

[Established by P. V. Spader, May 1, 1862. Latitude, 40° 20' N. Longitude, 74° 27' W. Elevation, 61 feet.]

This station was located at the residence of Mr. P. V. Spader, corner of George and Church streets. The maximum and minimum thermometers were exposed in an alleyway on the west side of the house, 5 feet from the ground, and protected from the sun and from reflection. The rain gage used was a small Smithsonian and was placed in the yard, with a free exposure, 4 feet above the ground. On May 1, 1860, the instruments were transferred to the present observer. They are placed in a shelter of the regular Weather Bureau pattern in the center of a lot, about 40 feet from any building and 5 feet above the ground. The maximum and minimum thermometers are the regular standard instruments, as is also the rain gage. Both the thermometers and the rain gage have a good open exposure. The observer's dwelling is situated on South Paterson street between George and Hiram streets.

Monthly mean temperatures were computed from the daily extremes.

Average number of days with maximum temperature above 90° for a period of fourteen years, with minimum below 32°, thirty years. The remaining data are for the period of observation February 1, 1857, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.		
December.....	33	40	69	28	4	42	26	3.7	9	4.2	1.8	3.6	10.0	N.W.
January.....	30	37	66	24	12	39	23	3.8	11	3.3	6.1	7.4	10.7	N.W.
February.....	32	38	70	25	-10	41	22	3.7	11	1.9	2.4	11.2	10.0	N.W.
Winter mean.....	32	38	.....	26	.....	.....	.....	11.2	31	9.4	10.6	22.2	.....	N.W.
March.....	38	46	76	32	2	47	31	3.9	13	1.9	3.2	3.0	11.3	N.W.
April.....	50	58	95	41	17	55	42	3.8	10	4.1	5.0	0.5	1.0	N.W.
May.....	61	70	99	52	31	67	54	4.0	12	4.8	4.2	0.0	0.0	S.W.
Spring mean.....	50	58	.....	42	.....	.....	.....	11.7	35	10.8	12.4	3.5	.....	N.W.
June.....	70	78	102	61	42	74	65	3.9	11	0.2	3.4	0.0	0.0	S.W.
July.....	74	83	106	66	45	79	71	5.1	12	2.8	10.4	0.0	0.0	S.W.
August.....	72	81	101	65	45	78	67	5.0	11	3.0	5.0	0.0	0.0	S.E.
Summer mean.....	72	81	.....	64	.....	.....	.....	14.0	34	6.0	18.8	0.0	.....	S.W.
September.....	66	74	103	58	37	73	60	3.8	9	1.5	7.8	0.0	0.0	N.W.
October.....	55	63	91	47	24	61	50	3.6	9	2.0	3.1	T.	T.	N.W.
November.....	44	51	76	37	10	49	38	3.7	10	3.6	8.5	2.0	6.0	N.W.
Fall mean.....	55	63	.....	47	.....	.....	.....	11.1	28	7.1	19.4	2.0	.....	N.W.
Annual mean.....	52	60	106	45	-12	.....	.....	48.0	128	33.3	61.2	27.7	11.3	N.W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 28; Feb. 5, 14, 17, 24, 25, 27; Dec. 28, 29.	June 23; July 1, 13, 19-21, 25-29, 31; Sept. 10.	1900	Jan. 2, 4, 30; Feb. 1, 2, 19, 25, 27, 28; Mar. 12, 18; Dec. 15, 17.	May 15; June 27; July 16-18; Aug. 6, 7, 9-12, 26, 27, 31; Sept. 6.
1895	Jan. 5, 13, 14; Feb. 1, 3, 5-9, 12; Dec. 13.	May 10, 30, 31; June 1-3; July 20, 21; Aug. 16, 29; Sept. 12, 20-23.	1901	Jan. 19, 20; Feb. 1, 13, 14; Mar. 6, 7; Dec. 6, 22.	June 26-30; July 1-3, 21, 28.
1896	None.	None.	1902	Feb. 5, 6; Dec. 9, 10, 28.	July 9.
1897	Do.	Do.	1903	Jan. 13, 19; Feb. 18-21; Dec. 19, 26, 27, 29.	July 9, 10.
1898	Jan. 30, 31; Feb. 2-4; Dec. 14.	June 13, 25, 26, 30; July 1-4, 15, 30; Aug. 24, 31; Sept. 1-5.			
1899	Jan. 1-3, 11, 12; Feb. 1, 2, 9, 10, 12-16; Dec. 30, 31.	June 5-8, 15; July 3, 4, 22; Aug. 21.			

NEW JERSEY.

Sea Coast: MONMOUTH COUNTY. Station: ASBURY PARK.

B. H. OBERT, Observer.

[Established by the New Jersey weather service January 1, 1889. Latitude, 40° 13' N. Longitude, 74° 0' W. Elevation, 30.5 feet.]

This station is located directly on the Atlantic coast. Up to April, 1898, the maximum and minimum thermometers were exposed in a shelter, furnished by the Weather Bureau, in the yard directly in the rear of Park Hall, about two-thirds of a mile from the ocean front.

The rain gage was placed on the roof of a building in said yard 15 feet above the ground surface and 44 feet distant from the nearest building, which rises about 15 feet higher than the rain gage.

In April, 1898, the thermometers were removed to a new instrument shelter constructed by the board of health and placed over a grass plot on the beach front about 150 feet from high-water mark. The shelter is about 8 feet above the ground surface.

The rain gage was also removed from Park Hall premises in April, 1898, and mounted on a tower of the fire department building, about 40 feet above the ground surface, and free from obstructions. The rain gage was again moved in April, 1903, to the present quarters of the board of health, about half a mile from the ocean front, and placed on a tower on the roof of said building, 40 feet above the ground surface.

Monthly mean temperatures were computed from the daily extremes.

Snowfall, wind, and frost data and average number of days with maximum temperatures above 90° and minimum below 32° are for the period of observation January, 1893, to December, 1903. The remaining data are for the period January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	55	42	67	27	4	42	29	3.5	10	1.5	3.1	3.5	11.0	NW.
January.....	32	38	61	24	- 5	41	27	3.7	10	1.6	4.0	7.5	12.0	NW.
February.....	32	39	63	24	-10	42	25	4.2	10	7.3	4.4	9.9	21.9	NW.
Winter mean.....	33	40	.....	25	.....	.....	.....	11.4	30	10.4	11.5	20.9	.....	NW.
March.....	39	47	77	32	0	45	34	4.6	12	4.9	4.1	3.3	6.0	NW.
April.....	49	57	90	40	20	52	47	3.6	8	1.8	3.3	0.4	3.5	SE.
May.....	59	68	96	50	34	66	56	3.8	10	3.7	6.7	0.0	0.0	SE.
Spring mean.....	49	57	.....	41	.....	.....	.....	12.0	30	10.4	14.1	3.7	.....	SE.
June.....	69	77	99	60	44	72	63	3.9	9	3.6	1.7	0.0	0.0	SE.
July.....	73	81	102	65	50	76	70	5.5	11	4.2	11.7	0.0	0.0	SE.
August.....	72	80	99	65	48	76	69	4.4	9	0.9	6.4	0.0	0.0	SE.
Summer mean.....	71	79	.....	63	.....	.....	.....	13.8	29	8.7	19.8	0.0	.....	SE.
September.....	67	75	90	60	38	71	64	3.4	8	3.0	1.5	0.0	0.0	NE.
October.....	56	64	97	48	27	61	51	4.4	8	1.7	5.8	0.0	0.0	NE.
November.....	45	53	76	37	9	52	40	3.1	9	2.2	8.5	2.1	12.0	NW.
Fall mean.....	56	64	.....	48	.....	.....	.....	10.9	25	6.9	15.8	2.1	.....	NE.
Annual mean.....	52	60	102	44	-10	.....	.....	48.1	114	36.4	61.2	26.7	21.9	NW. SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 90° or above.
1894	Feb. 5, 17, 24, 25; Dec. 29.	June 11, 17, 20, 22-24; July 4, 18-15, 19, 20, 25, 26, 28-30.	1899	Jan. 1, 2, 11; Feb. 1, 2, 9-15; Mar. 2, 4, 7, 14, 18, 28; Dec. 30, 31.	June 6-8; July 27.
1895	Jan. 20; Feb. 5-10....	May 30, 31; June 1-3; Sept. 21, 23.	1900	Jan. 30; Feb. 1, 2, 19, 25, 27; Mar. 18.	May 14-16; June 25-30; July 4, 7, 8, 16, 18; Aug. 6, 7, 10-12; Sept. 6, 7.
1896	Jan. 5-8; Feb. 17, 18; Dec. 24, 25, 28.	Apr. 17; May 10-12; June 20-22; July 12, 13, 30; Aug. 4, 9-12.	1901	Jan. 19, 20; Feb. 1, 2; Mar. 7; Dec. 18, 20.	June 30; July 1-3, 21-23, 29-31.
1897	Jan. 13, 19, 25, 26, 30; Feb. 15.	June 30; Sept. 10, 11; Oct. 16.	1902	Feb. 5, 6; Dec. 9.....	July 5, 20.
1898	Jan. 30, 31; Feb. 2-4; Dec. 14.	June 12, 14, 25, 26; July 1, 3, 4, 15, 16; Aug. 8, 17, 30, 31; Sept. 1-5.	1903	Jan. 13, 19; Feb. 18-20; Dec. 27.	July 1-3, 8-11; Aug. 25.

NEW JERSEY.

Southern Interior: BURLINGTON COUNTY. Station: MOORESTOWN.

JOHN C. BEANS, Observer.

[Established in February, 1863. Latitude, 40° 0' N. Longitude, 74° 54' W. Elevation, 71 feet.]

This station is about 3 miles northeast of Moorestown, on a farm in a district comparatively clear of woodland, but interspersed with shade and fruit trees. It is within a mile of Rancocas River, a tidal stream which empties into the Delaware River. The surface is comparatively level, and the soil, though sandy, is generally sodded within 100 yards of the instrument shelter.

The station was equipped with standard Weather Bureau instruments by the New Jersey weather service in February, 1891. The thermometers are in the standard shelter, 5½ feet above the sod. The rain gage is located 55 yards from the dwelling and 21 yards from the nearest tree. The top of the gage is 2.6 feet above the ground.

Observations were made by Mr. Thomas J. Beans from 1863 to 1900 and by Mr. John C. Beans from 1900 to 1903.

From April, 1863, to March, 1891, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m., and from April, 1891, to April, 1904, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1863, TO APRIL 30, 1901.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	33	64	76	0	- 9	41	24	3.5	9	2.2	8.2	5.4	7.5	NW.
January.....	30	58	73	5	-15	40	21	3.5	10	4.8	3.0	8.0	5.5	NW.
February.....	31	58	72	2	-13	30	22	3.7	9	0.9	6.4	8.0	13.0	NW.
Winter mean.....	31	60		5				10.7	28	7.9	17.6	21.4		NW.
March.....	38	68	79	16	2	49	30	3.8	11	4.0	4.2	4.6	6.0	NW.
April.....	50	83	94	27	21	55	43	3.1	9	5.1	3.6	0.4	3.5	NW.
May.....	61	89	97	37	31	68	54	4.1	10	2.6	2.4	T.	0.0	NW.
Spring mean.....	50	80		27				11.0	30	11.7	10.2	5.0		NW.
June.....	70	94	99	48	43	74	65	3.8	9	5.0	7.3	0.0	0.0	NW.
July.....	75	96	102	53	50	79	70	4.6	10	2.9	7.1	0.0	0.0	NW.
August.....	73	93	101	52	48	77	68	4.6	9	0.6	8.4	0.0	0.0	NW.
Summer mean.....	73	94		51				13.0	28	8.5	22.8	0.0		NW.
September.....	66	91	103	41	36	74	61	3.7	8	0.5	5.3	0.0	0.0	NW.
October.....	54	82	90	30	26	61	48	3.7	8	4.3	7.6	T.	0.0	NW.
November.....	43	71	78	20	10	50	36	3.5	9	2.9	2.5	0.9	10.5	NW.
Fall mean.....	54	81		30				10.9	25	7.7	15.4	0.9		NW.
Annual mean.....	52	79	103	38	-15			45.6	111	35.8	66.0	27.3	13.0	NW.

*The values here given appear to be the means of the monthly rather than the daily extremes.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Feb. 5, 24, 25; Dec. 29.	June 23, 24; July 13, 26-29.	1900	Jan. 2-4, 30; Feb. 1-3, 19, 20, 25, 27, 28; Mar. 18; Dec. 15, 17.	July 16-18; Aug. 7, 10-12.
1895	Jan. 5; Feb. 3, 6-9, 11.	Aug. 11, 12, 16, 17, 24, 29; Sept. 12, 21-23, 26.	1901	Jan. 20; Feb. 1, 14; Mar. 7; Dec. 6, 8, 19, 22.	June 30; July 1-3, 29.
1896	Jan. 5, 6, 8; Feb. 17, 18, 20; Dec. 24, 25, 27-29.	Aug. 6-9, 11-13.	1902	Feb. 5, 6, 19.	None.
1897	Jan. 13, 20, 25, 26, 30, 31; Feb. 1, 27.	July 10; Sept. 10, 11.	1903	Jan. 13, 19; Feb. 18-21; Dec. 19, 27.	None.
1898	Jan. 2, 30, 31; Feb. 3, 4; Dec. 14.	July 1, 3, 4; Sept. 1-3, 5.			
1899	Jan. 1-3, 11, 12; Feb. 1, 2, 9, 11-16; Dec. 30, 31.	June 6, 7; July 22.			

NEW JERSEY.

Southern Interior: CUMBERLAND COUNTY. Station: VINELAND.

ALFRED CHALMERS, Observer.

[Established by Dr. I. Ingram, August 1, 1867. Latitude, 39° 29' N. Longitude, 75° 1' W. Elevation, 118 feet.]

This station is situated 4½ miles northeast of the town of Vineland, in the open country, which is level. The station was equipped with standard Weather Bureau instruments by the New Jersey weather service February 1, 1891. The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter, 45 feet northwest of Mr. Chalmers's dwelling and 60 feet southwest of his barn. The instruments are 4½ feet above the ground. The rain gage is 12 feet west of the shelter. The top of the gage is 2½ feet above the ground.

From 1868 to 1889, inclusive, mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; from 1891 to 1903, inclusive, from the daily extremes.

Maximum and minimum temperature data are for the period of observation 1891 to 1903; snowfall, wind direction, and average number of days with maximum temperature above 90°, and minimum below 32°, for the period 1893 to 1903. The remaining tabulated data are for the period August 1, 1867, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	45	68	26	-5	42	25	3.8	8	2.8	6.8	2.8	6.5	NW.
January.....	32	41	63	24	-11	41	25	4.2	10	2.6	3.8	4.3	7.0	NW.
February.....	33	42	71	24	-13	40	24	4.1	10	4.0	7.4	8.6	18.0	NW.
Winter mean.....	33	43	.....	25	.....	.....	.....	12.1	28	9.4	18.0	15.7	.....	NW.
March.....	40	52	83	32	10	46	31	4.3	11	2.6	4.4	1.4	3.0	NW.
April.....	51	63	97	40	21	56	43	3.3	9	2.2	3.6	0.1	1.5	NW.
May.....	62	74	98	50	29	69	57	3.7	11	3.0	1.4	0.0	0.0	SE.
Spring mean.....	51	63	.....	41	.....	.....	.....	11.3	31	7.8	9.4	1.5	.....	NW.
June.....	72	83	102	59	41	76	65	3.6	9	3.5	8.2	0.0	0.0	SE.
July.....	76	87	105	65	49	82	71	4.6	10	2.5	3.7	0.0	0.0	S.
August.....	74	85	104	64	46	78	69	4.8	10	2.0	2.1	0.0	0.0	SE.
Summer mean.....	74	85	.....	63	.....	.....	.....	13.0	29	8.0	14.0	0.0	.....	SE.
September.....	67	79	101	57	36	76	61	3.8	8	2.4	5.4	0.0	0.0	SE.
October.....	56	67	92	45	22	64	50	3.6	8	4.6	5.4	0.0	0.0	NW.
November.....	44	55	79	35	14	51	37	3.5	9	2.6	3.7	0.8	6.0	NW.
Fall mean.....	56	67	.....	46	.....	.....	.....	10.9	25	9.6	14.5	0.8	.....	NW.
Annual mean.....	53	64	105	43	-13	.....	.....	47.3	113	34.8	55.9	18.0	18.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Feb. 5, 24, 25; Dec. 29, 30.	June 17, 21-24, 27, 28; July 3, 12-21, 25-31; Aug. 18; Sept. 10.	1899	Jan. 2, 3, 11; Feb. 1, 2, 9-16; Dec. 29-31.	June 5-8, 15; July 3, 23.
1895	Jan. 5; Feb. 3, 5-9, 12, 15, 16.	May 30, 31; June 1-3, 5, 23, 24, 27; July 17, 20, 21; Aug. 9-12, 15, 24, 28, 29, 31; Sept. 12, 20-23.	1900	Jan. 4, 30; Feb. 1, 2, 20, 25, 27, 28; Mar. 18; Dec. 22.	May 15; June 27; July 4-8, 15-20; Aug. 6, 7, 9-12, 26, 27; Sept. 6, 7.
1896	Jan. 5, 6, 8; Feb. 17, 18, 20, 21; Mar. 25; Dec. 18, 20, 24-26, 28, 29.	Apr. 17-19; May 10, 11, 17; June 8; Aug. 5-13.	1901	Jan. 20; Feb. 1, 2, 23; Mar. 7; Dec. 18-20, 22.	June 12, 29, 30; July 1-6, 24, 29, 30; Aug. 10.
1897	Jan. 25, 26, 29-31; Feb. 27.	June 30; July 6; Sept. 10, 11.	1902	Jan. 5; Feb. 5.....	June 13; July 20.
1898	Feb. 2-4; Dec. 3, 8, 21.	June 13, 25, 26, 28; July 1-4, 21, 29; Sept. 1-3, 5, 6.	1903	Jan. 13, 19; Feb. 18-20; Dec. 19.	May 20; July 2, 9-11; Aug. 25.

NEW JERSEY.

Seacoast: ATLANTIC COUNTY. Station: ATLANTIC CITY.

EDWARD W. MCGANN, Section Director.

[Established by Signal Service on December 10, 1873. Latitude 39° 22' N.; Longitude 74° 25' W. Elevation, 9 feet.]

The station was established December 10, 1873, and now occupies a building erected by the Bureau especially for its use. It is located on Rhode Island avenue, in the extreme northeast portion of the city. The exposure is free and open on the south and east and commands a good view of the ocean. The station is fully equipped with standard Weather Bureau instruments. The thermometer and rain gages are exposed on the roof of the building. The elevation of the barometer is 16 feet above mean sea level.

Tabulated data are from the following periods of observation. Snowfall, nineteen years; humidity, thirteen years; sunshine, seven years; frost, twenty years; mean maximum and mean minimum temperatures, twenty years. Remainder of data is from the whole period of observation, twenty-eight years, January 1, 1874, to November 30, 1894, and December 1, 1896, to December 31, 1903.

MONTHLY SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	36	43	68	29	- 7	44	27	3.9	10	2.8	5.5	2.8	13.0	82	2.02	81	2.14	168	58	N.W.	
January.....	33	40	64	25	- 4	42	23	3.5	12	2.4	3.9	4.9	10.1	83	1.68	81	1.92	167	55	N.W.	
February.....	33	40	71	27	- 7	41	23	3.4	11	3.3	5.2	5.8	18.0	81	1.64	80	1.82	178	39	N.W.	
Winter mean.....	34	41	.....	27	.....	.....	.....	10.8	33	8.5	14.6	13.5	.....	82	1.78	81	1.96	171	57	N.W.
March.....	38	45	77	32	8	45	31	3.7	13	2.8	5.7	3.1	7.0	81	2.07	80	2.20	196	54	N.W.	
April.....	47	54	84	41	19	52	42	3.1	11	2.0	2.5	T.	0.1	79	2.70	81	3.08	233	58	S.W.	
May.....	57	63	90	52	33	63	53	3.0	11	3.2	0.5	0.0	0.0	82	4.11	85	4.26	264	60	S.W.	
Spring mean.....	47	54	.....	42	.....	.....	.....	9.8	35	8.0	8.7	3.1	.....	81	2.96	82	3.18	231	57	S.W.
June.....	67	73	95	60	45	70	63	3.1	9	2.3	4.4	0.0	0.0	83	5.63	87	5.71	295	66	S.W.	
July.....	72	78	99	66	52	75	69	3.8	10	3.1	10.1	0.0	0.0	84	6.92	88	7.25	313	72	S.W.	
August.....	72	78	98	66	48	76	68	4.4	10	0.7	7.0	0.0	0.0	84	6.92	86	7.32	295	70	S.W.	
Summer mean.....	70	76	.....	64	.....	.....	.....	11.3	29	6.1	21.5	0.0	.....	84	6.49	87	6.76	301	69	S.W.
September.....	67	73	94	61	37	72	64	3.2	8	1.4	2.2	0.0	0.0	84	5.80	84	6.08	260	72	S.W.	
October.....	57	63	86	50	29	61	51	3.6	10	1.8	12.1	0.0	0.0	83	4.02	81	4.20	207	60	N.W.	
November.....	45	52	74	39	10	52	40	3.3	10	2.2	1.9	1.1	8.0	82	2.70	81	2.87	166	35	N.W.	
Fall mean.....	56	63	.....	50	.....	.....	.....	10.1	28	5.4	16.2	1.1	.....	83	4.20	82	4.38	214	62	N.W.
Annual mean.....	52	58	99	46	- 7	.....	.....	42.0	125	28.0	61.0	17.7	18.0	82	3.86	83	4.07	229	62	N.W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 90° or above.	Year.	Minimum below 10°.	Maximum 90° or above.
1894	Feb. 25.....	June 11, 24.	1900	Feb. 1, 2, 27.....	May 14; June 25, 29; July 4, 5, 7; Aug. 7, 9-12.
1895	Missing.....	Missing.			
1896	.....do.....	Do.	1901	Jan. 19, 20.....	June 30; July 1, 2, 30.
1897	Jan. 25, 26.....	June 25, 30; Sept. 11.	1902	None.....	July 5, 20; Aug. 25.
1898	Feb. 2.....	June 26; July 1; Aug. 25.	1903	Feb. 19.....	May 20; July 26; Aug. 25.
1899	Jan. 1, 2, 11; Feb. 9-14; Dec. 1, 5, 11, 12, 26, 30.	June 7, 8.			

PENNSYLVANIA.

By THEODORE F. TOWNSEND,
Local Forecaster.

PENNSYLVANIA.

Pennsylvania is about 160 miles wide between its northern and southern boundaries and over 300 miles long between its western and eastern border lines, the latter following the course of the Delaware River. At its northwest corner it has a shore line of 40 miles on Lake Erie. Its surface area measures nearly 28,000,000 acres, or 45,000 square miles, less than one-half of which is under cultivation.

The State is subdivided into 67 counties and topographically into three parts: (1) The open country between the South Mountains and its southern and eastern boundaries, (2) a middle belt of parallel valleys separated by parallel mountain ranges, and (3) a northern and western upland behind the escarpment of the Allegheny Mountains.

The climate is necessarily varied, and, in a greater or lesser degree, includes the marine, continental, mountain, and plain. The ordinary method of illustrating the temperature distribution by the use of isothermal lines is especially difficult for this State, in consequence of the extremely broken character of the surface contours. The mountain ranges are separated by deep valleys, in some cases with abrupt slopes, and the elevated masses are deeply cut through by larger rivers and their tributaries. The winds are in general from a westerly quarter. In the western portion of the State the influence of the Great Lakes is manifest in the great number of light snows in winter, and along the immediate lake shore the extremes of temperature are not so pronounced as in the interior of the State. The prevailing westerly winds are interrupted with greater or less frequency by southerly winds, which are relatively warm at all seasons, and by easterly winds, which, being from the ocean, are moist at all times and relatively cool in summer.

The northwestern plateau or upland is the coldest part of the State and the southeastern the warmest. The extremes of temperature are greater in the valleys than on the higher elevations. In the mountain districts the summer maxima are from 8° to 10° less than in the adjacent valleys. The annual mean temperature of the open country between the South Mountains and its southern and eastern boundaries is about 52°; that of the middle belt of parallel valleys and mountain ridges is about 50°; and of the uplands, north of the Alleghenies, 48° to 45°.

The isotherms of 49° and 48° have the most extensive range, viz, from Pike County on the Delaware River to the southern, western, and northern boundaries. Those of 47°, 46°, and 45° pass through the northern tier of counties from Wayne County on the east to Warren County on the west, and extend into Clearfield County through its adjacent counties on the north.

The last killing frost in spring and first killing frost in autumn occur in April or May and September or October, according to locality and season.

The annual rainfall, 44 inches, subdivided among the four seasons, gives for the winter, 10; for spring, 11; for summer, 13; and for autumn, 10. Excessive rainfalls are not infrequent in the southeastern section of the State. The rainfall is rather evenly distributed throughout the year.

The snowfall is usually sufficient for the protection of winter grain; in the mountain regions it is often so great that when it melts suddenly great floods are produced in the Delaware, Susquehanna, and Ohio rivers and their tributaries. Destructive freshets sometimes occur in these rivers when heavy rains or warm weather cause the ice to break up in the spring.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (<i>see</i> York).....		Southern.....		Lawrence (<i>see</i> Saegers-town).....		Western.....	
Allegheny.....	Pittsburg.....	Southwestern.....	222	Lebanon.....	Lebanon.....	Southeastern.....	221
Armstrong (<i>see</i> Pittsburg).....		Western.....		Lehigh (<i>see</i> Mauch Chunk).....		Eastern.....	
Beaver (<i>see</i> Pittsburg).....		.....do.....		Luzerne (<i>see</i> Mauch Chunk).....		.....do.....	
Bedford (<i>see</i> Huntingdon).....		Southern.....		Lycoming (<i>see</i> Emporium).....		Northern.....	
Berks (<i>see</i> Lebanon).....		Southeastern.....		McKean (<i>see</i> Emporium).....		.....do.....	
Blair (<i>see</i> Huntingdon).....		Central.....		Mercer (<i>see</i> Saegerstown).....		Northwestern.....	
Bradford.....	Le Roy.....	Northern.....	217	Mifflin (<i>see</i> Huntingdon).....		Central.....	
Bucks.....	Quakerstown.....	Southeastern.....	225	Monroe (<i>see</i> Mauch Chunk).....		Eastern.....	
Butler (<i>see</i> Pittsburg).....		Western.....		Montgomery (<i>see</i> West Chester).....		Southeastern.....	
Cambria (<i>see</i> Huntingdon).....		Central.....		Montour (<i>see</i> Selinsgrove).....		Central.....	
Cameron.....	Emporium.....	Northern.....	216	Northampton (<i>see</i> Mauch Chunk).....		Eastern.....	
Carbon.....	Mauch Chunk.....	Eastern.....	221	Northumberland (<i>see</i> Selinsgrove).....		Central.....	
Center.....	State College.....	Central.....	219	Perry (<i>see</i> Harrisburg).....		.....do.....	
Chester.....	West Chester.....	Southeastern.....	228	Philadelphia.....	Philadelphia.....	Southeastern.....	229
Clarion (<i>see</i> Saegerstown).....		Western.....		Pike (<i>see</i> South Eaton).....		Eastern.....	
Clearfield (<i>see</i> Emporium).....		Central.....		Potter (<i>see</i> Emporium).....		Northern.....	
Clinton (<i>see</i> Emporium).....		Northern.....		Schuylkill (<i>see</i> Mauch Chunk).....		Eastern.....	
Columbia (<i>see</i> Selinsgrove).....		Central.....		Snyder.....	Selinsgrove.....	Central.....	220
Crawford.....	Saegerstown.....	Northwestern.....	215	Somerset (<i>see</i> Huntingdon).....		Southwestern.....	
Cumberland (<i>see</i> Harrisburg).....		Southern.....		Sullivan (<i>see</i> Le Roy).....		Northern.....	
Dauphin.....	Harrisburg.....	Central.....	226	Susquehanna (<i>see</i> Le Roy).....		Northeastern.....	
Delaware (<i>see</i> West Chester).....		Southeastern.....		Tioga (<i>see</i> Le Roy).....		Northern.....	
Elk (<i>see</i> Emporium).....		.....do.....		Union (<i>see</i> Selinsgrove).....		Central.....	
Erie.....	Erie.....	Northwestern.....	214	Venango (<i>see</i> Saegerstown).....		Northwestern.....	
Fayette (<i>see</i> Pittsburg).....		Southwestern.....		Warred (<i>see</i> Saegerstown).....		.....do.....	
Forest (<i>see</i> Saegerstown).....		Northwestern.....		Washington (<i>see</i> Pittsburg).....		Southwestern.....	
Franklin (<i>see</i> Huntingdon).....		Southern.....		Wayne (<i>see</i> South Eaton).....		Northeastern.....	
Fulton (<i>see</i> Huntingdon).....		.....do.....		Westmoreland (<i>see</i> Pittsburg).....		Southwestern.....	
Greene (<i>see</i> Pittsburg).....		Southwestern.....		Wyoming.....	South Eaton.....	Northeastern.....	218
Huntingdon.....	Huntingdon.....	Central.....	223	York.....	York.....	Southern.....	227
Indiana (<i>see</i> Pittsburg).....		Western.....					
Jefferson (<i>see</i> Emporium).....		.....do.....					
Juniata (<i>see</i> Selinsgrove).....		Central.....					
Lackawanna (<i>see</i> South Eaton).....		Northeastern.....					
Lancaster (<i>see</i> Harrisburg and Lebanon).....		Southeastern.....					

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—		
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maxi- mum above 32°.	Mini- mum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Erie.....	1	49	56	42	94	July, 1890.	-16	February, 1875.	1	106
Saegertown.....	2	47	60	35	90	July, 1897.	-27	February, 1892.	11	151
Emporium.....	3	49	59	38	98	May, 1895.	-28	February, 1899.	5	132
Leroy.....	4	47	55	38	98	June, 1891.	-20	do.	5	139
South Eaton.....	5	48	58	40	97	July, 1892.	-18	January, 1893.	4	125
State College.....	6	49	58	40	96	July, 1900.	-20	February, 1899.	5	118
Selinsgrove.....	7	51	62	40	101	do.	-22	do.	18	118
Mauch Chunk.....	8	51	60	39	104	July, 1898.	-14	do.	24	125
Pittsburg.....	9	53	62	44	103	July, 1891.	-20	do.	18	93
Huntingdon.....	10	51	62	39	104	July, 1898.	-23	do.	25	120
Lebanon.....	11	51	62	40	104	do.	-16	do.	19	114
Quakerstown.....	12	50	61	40	105	do.	-15	do.	22	126
Harrisburg.....	13	52	60	44	101	do.	-13	do.	13	94
York.....	14	52	62	42	107	July, 1901.	-17	do.	21	110
West Chester.....	15	52	61	44	100	do.	-12	do.	11	94
Philadelphia.....	16	54	62	46	103	do.	-6	do.	13	86

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Erie.....	1	Oct. 19	Apr. 30	Oct. 12	May 17	Inches. 39.2	Inches. 8.8	Inches. 10.2	Inches. 11.0	Inches. 9.2
Saegertown.....	2	Sept. 24	May 14	Sept. 11	June 2	44.3	10.6	13.5	10.1	10.1
Emporium.....	3	Sept. 29	May 6	Sept. 21	May 29	44.2	11.6	13.2	9.7	9.7
Leroy.....	4	Oct. 2	May 2	Sept. 15	do.	41.2	11.0	12.3	9.4	8.5
South Eaton.....	5	Sept. 28	Apr. 22	Sept. 6	May 10	38.2	10.0	10.7	9.0	8.5
State College.....	6	Sept. 22	May 12	Sept. 2	June 9	40.2	10.8	12.0	8.8	8.6
Selinsgrove.....	7	Oct. 1	May 8	Sept. 19	do.	44.1	11.6	12.8	10.5	9.2
Mauch Chunk.....	8	Oct. 10	May 10			50.5	13.1	13.8	11.5	12.1
Pittsburg.....	9	Oct. 19	Apr. 26	Sept. 25	May 29	36.8	9.4	11.4	7.5	8.5
Huntingdon.....	10	Oct. 15	May 1			42.2	12.0	11.6	9.3	9.3
Lebanon.....	11	Oct. 25	Apr. 25			45.9	12.3	12.6	10.3	10.7
Quakerstown.....	12	Oct. 20	Apr. 20			45.2	11.3	12.3	10.8	10.8
Harrisburg.....	13	Oct. 23	Apr. 9	Oct. 3	Apr. 26	38.1	9.9	11.5	8.3	8.4
York.....	14	Oct. 1	Apr. 25	Sept. 19	May 10	41.9	10.7	11.5	10.3	9.4
West Chester.....	15	Oct. 26	Apr. 23	Sept. 26	May 31	50.5	12.8	13.3	12.2	12.2
Philadelphia.....	16	Oct. 30	Apr. 8	Oct. 3	Apr. 29	40.6	9.5	11.9	9.5	9.7

PENNSYLVANIA.

Lake Shore: ERIE COUNTY. Station: ERIE.

T. J. CONSIDINE, Observer.

[Established by Signal Service May 25, 1873, at corner of Fifth and State streets. Moved to Federal Building, corner of Park Row and State street, August 1, 1888. Latitude, 42° 1' N. Longitude, 80° 5' W. Elevation, 658 feet.]

This station is located in the Federal Building and is three-fourths of a mile from the bay. The harbor is inclosed by Presque Isle Peninsula, the narrow neck of which branches out from the mainland 3½ miles southwest of the station and extends to a point 1¼ miles northeast of the station. The peninsula is covered with a rather dense growth of trees, with here and there a pond. The shore line of the lake opposite this vicinity runs in a northeast and southwest direction. A low range of hills runs parallel to the lake shore at a distance of 5 miles.

The thermometers and the thermograph are exposed in a regular Weather Bureau shelter, which faces north-northwest and the bottom of which is 10 feet above the platform on top of the roof. The rain gage is 19 feet northwest of the shelter. The anemometer and the anemoscope are 65 feet north-northeast of the shelter. The elevations above ground of the instruments are: Thermometers, 92 feet; rain gage, 82 feet; anemometer, 102 feet.

All tabulated data are for thirty years—January 1, 1874, to December 31, 1903—except snow, nineteen years; sunshine, six years; and humidity, fifteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	31	39	70	26	-11	41	22	3.1	20	4.2	4.4	11.1	7.3	82	1.66	77	1.69	42	14	SW.
January.....	27	34	73	20	-15	40	18	3.0	19	1.5	6.2	12.7	10.7	83	1.35	79	1.40	59	30	SW.
February.....	27	35	70	19	-16	37	16	3.1	16	1.4	3.4	10.1	7.3	84	1.24	82	1.33	98	33	W.
Winter mean.....	28	36	.....	22	.....	.....	.....	9.2	55	7.1	14.0	33.9	.....	83	1.42	79	1.47	66	22	SW.
March.....	33	40	78	25	-1	43	25	2.8	16	3.1	5.4	7.3	9.4	81	1.57	79	1.73	152	41	W.
April.....	45	52	86	37	11	54	37	2.4	13	1.1	3.2	3.4	15.4	75	2.47	73	2.58	221	55	W.
May.....	57	65	91	49	31	65	51	3.6	13	5.4	6.3	0.0	2.0	75	3.76	74	3.97	263	58	W.
Spring mean.....	45	52	.....	37	.....	.....	.....	8.8	42	9.6	14.9	10.7	.....	77	2.60	75	2.76	212	51	W.
June.....	66	74	92	59	40	71	62	3.9	12	1.9	3.4	0.0	0.0	75	5.09	74	5.36	287	62	SW.
July.....	71	78	94	64	47	76	66	3.1	10	2.6	2.7	0.0	0.0	71	5.67	65	5.53	318	■	W.
August.....	69	77	94	62	47	74	60	3.2	10	0.1	2.0	0.0	0.0	73	5.46	70	5.59	269	63	W.
Summer mean.....	69	76	.....	62	.....	.....	.....	10.2	32	4.6	8.1	0.0	.....	73	5.41	70	5.49	291	65	SW.
September.....	64	71	92	57	36	72	60	3.6	12	3.8	7.1	0.0	0.0	80	4.75	77	5.05	213	57	S.
October.....	53	60	87	46	23	61	46	3.6	14	2.0	6.8	1.1	1.1	76	3.10	73	3.30	157	46	S.
November.....	41	48	74	35	6	49	35	3.8	17	1.3	4.3	5.3	11.8	78	2.22	75	2.30	71	24	S.
Fall mean.....	53	39	.....	46	.....	.....	.....	11.0	43	7.1	18.2	6.4	.....	78	3.36	75	3.55	147	42	S.
Annual mean.....	49	56	94	42	-16	.....	.....	39.2	172	28.4	55.2	51.0	15.4	78	3.20	75	3.32	179	45	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 25.....	June 24, 26; July 1, 17, 18, 20, 27; Sept. 15.	1899	Jan. 11, 31; Feb. 1, 8-13.	Aug. 19, 20; Sept. 7.
1895	Jan. 13; Feb. 5-9.....	June 4; July 19; Aug. 17.	1900	Feb. 25, 27.....	July 17; Aug. 25; Sept. 2.
1896	Feb. 17, 18.....	Aug. 6.	1901	Feb. 14; Mar. 6.....	July 28, 29.
1897	Jan. 25, 26.....	July 4, 5, 10.	1902	Feb. 5.....	None.
1898	Feb. 3.....	.....	1903	Jan. 12; Feb. 17-19....	Do.

PENNSYLVANIA.

Northwestern Section: CRAWFORD COUNTY. Station: SAEGERSTOWN.

J. G. APPLE, Observer.

[Established December, 1891. Latitude, 41° 43' N. Longitude, 80° 7' W. Elevation, 1,116 feet.]

This station is located in the northern portion of Saegerstown, in French Creek Valley, with hills from 150 to 200 feet high on the east and west one-half of a mile distant. The thermometers are exposed 4½ feet above the sod, in a standard shelter of the Weather Bureau pattern, 40 feet southeast of a two-story frame dwelling. The rain gage is 10 feet east of a small fruit tree and 20 feet west of the instrument shelter; its top is 3 feet above the ground. The monthly mean temperatures were obtained from tridaily readings up to January, 1892; from January, 1892, to December 31, 1903, from daily extremes.

Tabulated data are for the period of observation—January 1, 1892, to December 31, 1902—except frost data, which are for the period 1896–1902 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	29	33	64	21	-15	31	24	3.5	13	2.4	3.3
January.....	24	35	61	14	-27	31	13	3.2	14	2.6	3.3
February.....	23	34	65	12	-25	29	15	3.4	14	2.7	2.4
Winter mean.....	25	36		15				10.1	41	7.7	9.2
March.....	34	45	75	23	-16	41	27	3.0	13	1.7	3.6
April.....	46	59	89	32	2	51	21	2.7	11	2.6	2.2
May.....	57	71	94	43	22	64	54	4.9	11	4.9	4.0
Spring mean.....	46	58		33				10.6	35	9.2	9.8
June.....	66	80	97	52	31	70	61	4.2	10	1.6	3.6
July.....	70	83	99	55	35	74	65	5.1	12	1.5	14.5
August.....	67	82	98	52	34	73	64	4.2	10	1.0	6.6
Summer mean.....	68	82		53				13.5	32	4.1	24.7
September.....	62	76	95	48	25	65	59	3.9	11	6.1	1.6
October.....	51	64	89	37	18	58	44	2.3	9	2.3	0.6
November.....	39	49	78	30	-4	46	35	3.9	13	2.6	6.5
Fall mean.....	51	63		38				10.1	33	11.0	8.6
Annual mean.....	47	60	99	35	-27			44.3	141	32.0	52.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 26; Feb. 5; Mar. 28; Dec. 28.	June 23; July 19; Aug. 1; Sept. 2.	1900	Jan. 29-31; Feb. 1, 2, 25-27; Mar. 12; Dec. 17.	July 4, 5, 18; Aug. 9.
1895	Jan. 31; Feb. 6; Dec. 13.	June 4; July 19.	1901	Jan. 2, 4, 6, 20; Feb. 8, 11, 13-16, 23, 24, 27, 28; Mar. 1, 6, 7; Dec. 20-22.	July 1, 21, 28.
1896	Jan. 4-6, 16; Feb. 12, 16, 17, 20, 21; Mar. 13, 14, 16, 21; Dec. 17, 28.	Aug. 9.	1902	Jan. 4, 15-18, 20, 28-30; Feb. 11, 13-16, 20; Dec. 29, 31.	None.
1897	Jan. 13, 20, 25-29, 31; Feb. 1, 27, 28; Mar. 1; Dec. 25, 29.	July 3-6.	1903	Jan. 1, 2, 11-13, 19, 20, 24; Feb. 17-19; Nov. 29, 30; Dec. 2, 3, 29.	Do.
1898	Jan. 26, 30; Feb. 2-4, 6, 17.	July 3.			
1899	Jan. 1, 11, 28-31; Feb. 1, 9-14; Dec. 30.	Aug. 19, 20.			

PENNSYLVANIA.

Upper Susquehanna Valley: CAMERON COUNTY. Station: EMPORIUM.

T. B. LLOYD, Observer.

[Established March, 1888. Latitude, 41° 31' N. Longitude, 78° 16' W. Elevation, 1,050 feet.]

Emporium is situated in a valley running east and west and which is about 1½ miles long and three-fourths of a mile wide, with surrounding hills 800 feet high. The station is located near the western limits of the town. The thermometers are exposed 7 feet above the sod, in a standard shelter of the Weather Bureau pattern, on the eastern side of a two-story building. The rain gage is 15 feet east of the shelter and 50 feet from the branches of a large tree; its top is 3 feet above the ground. The monthly mean temperatures were obtained from tridaily readings until April, 1891; from then to December 31, 1903, from the daily extremes.

Tabulated data are for the period March 1, 1888, to December 31, 1902, except the record of number of days with 0.01 or more precipitation, which extends from 1896 to 1902 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	30	38	64	22	-18	39	25	3.5	10	3.4	3.2
January.....	27	35	62	18	-17	36	18	3.1	10	4.8	3.8
February.....	26	35	65	16	-23	36	15	3.1	9	0.5	5.0
Winter mean.....	28	36	.....	19	.....	.....	.....	9.7	29	8.7	12.0
March.....	35	44	74	25	-13	43	28	3.6	12	1.6	4.8
April.....	48	59	80	35	16	52	44	3.0	10	2.5	4.0
May.....	60	72	98	46	24	70	57	5.0	12	3.1	9.6
Spring mean.....	48	58	.....	35	.....	.....	.....	11.6	34	7.2	18.4
June.....	68	80	96	54	35	72	63	4.6	11	5.0	4.8
July.....	71	83	97	58	38	74	67	4.8	12	3.1	4.9
August.....	70	80	95	56	35	72	65	3.8	7	3.0	7.8
Summer mean.....	69	81	.....	56	.....	.....	.....	13.2	30	11.1	17.5
September.....	62	74	90	50	30	66	59	3.4	8	2.9	7.9
October.....	50	61	85	39	15	56	45	3.1	9	1.8	5.3
November.....	40	49	73	31	9	45	35	3.2	10	2.6	2.2
Fall mean.....	51	61	.....	40	.....	.....	.....	9.7	27	7.3	15.4
Annual mean.....	49	59	98	38	-28	.....	.....	44.2	120	34.3	63.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17; Dec. 29.....	None.	1900	Jan. 29-31; Feb. 1-3, 26; Mar. 17, 18.	None.
1895	Jan. 31; Feb. 6.....	May 30; June 4.	1901	Jan. 6, 20; Feb. 1, 2, 8, 16, 17, 23, 24; Mar. 6; Dec. 19-22.	July 1.
1896	Jan. 5, 6; Feb. 17, 18; Mar. 13, 14, 24; Dec. 24, 28.	None.	1902	Jan. 20; Feb. 4-6, 14-16, 20.	None.
1897	Jan. 25-27, 31.....	July 5.	1903	Jan. 1, 20, 24; Feb. 18-21; Dec. 29.	Do.
1898	Jan. 30; Feb. 2-4, 17; Dec. 15.	None.			
1899	Jan. 1, 2, 11, 12, 28, 30; Feb. 1, 8-16; Dec. 7, 30.	Do.			

PENNSYLVANIA.

Northeastern Section: BRADFORD COUNTY. Station: LE ROY.

G. W. T. WARBURTON, Observer.

[Established January, 1889. Latitude, 41° 42' N. Longitude, 76° 48' W. Elevation, 1,400 feet.]

This station is located on the eastern slope of the hills of western Bradford County and about 2 miles north of old South Mountain, which has an elevation of about 2,000 feet and runs nearly east and west. The hills are mostly cleared.

The thermometers are exposed 4½ feet over sod, in a standard shelter of the Weather Bureau pattern, 30 feet from a 1½-story building. The rain gage is 30 feet southwest of the instrument shelter, in an open space, its top being 3 feet above the ground. The monthly mean temperatures were obtained from tridaily readings, until September, 1891; from then to December 31, 1903, from the daily extremes.

Tabulated data are for the period of observation, January 1, 1889, to December 31, 1902, except frost data and average number of days with maximum temperatures above 90° and minimum below 32°, which are for the period 1896-1902 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	28	34	62	21	- 8	36	22	3.4	13	2.8	4.1
January.....	24	30	59	17	-10	33	16	2.6	14	4.2	4.1
February.....	23	30	58	16	-20	32	16	2.5	12	0.2	5.3
Winter mean.....	25	31		18				8.5	39	7.2	13.5
March.....	32	39	65	23	- 7	40	24	3.4	15	1.0	4.1
April.....	45	55	87	34	13	49	42	3.4	13	2.2	1.5
May.....	57	67	91	47	26	63	55	4.2	14	2.2	1.9
Spring mean.....	45	54		35				11.0	42	5.4	7.5
June.....	67	77	98	57	37	70	62	4.1	13	6.7	4.2
July.....	70	80	96	60	43	73	66	4.0	14	3.1	5.6
August.....	68	78	96	59	44	73	65	4.2	11	3.7	5.4
Summer mean.....	68	78		59				12.3	38	13.5	15.2
September.....	62	72	94	52	32	66	58	3.1	11	1.8	2.2
October.....	50	58	85	41	20	57	43	3.3	11	1.0	4.4
November.....	38	45	71	31	8	45	32	3.0	13	1.7	3.0
Fall mean.....	50	58		41				9.4	35	4.5	9.6
Annual mean.....	47	55	98	38	-20			41.2	154	30.6	45.8

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 25; Dec. 29.....	July 20.	1900	Feb. 1, 2, 25-27; Mar. 17, 18; Dec. 14.	August 7.
1895	Jan. 13, 28; Feb. 6; Dec. 13.	None.	1901	Jan. 19, 20; Feb. 13, 23, 24; Mar. 6, 7; Dec. 7, 22.	None.
1896	Jan. 6; Feb. 17; Mar. 13, 14, 24; Dec. 24.	Do.	1902	Jan. 1, 20, 28; Feb. 4-6; Dec. 15.	Do.
1897	Jan. 13, 19, 25-27; Dec. 24.	July 5.	1903	Jan. 12-14, 19; Feb. 17-20; Dec. 19, 26, 27, 29.	Do.
1898	Jan. 2, 30; Feb. 2-4, 17.	July 3.			
1899	Jan. 1, 2, 10-12, 26-30; Feb. 1, 9-14; Dec. 30, 31.	None.			

PENNSYLVANIA.

Northeastern Section: WYOMING COUNTY. Station: SOUTH EATON.

B. M. HALL, Observer.

[Established September, 1889. Latitude, 40° 30' N. Longitude, 76° 55' W. Elevation, 660 feet.]

This station is located in the southeastern part of Wyoming County, in a broad valley, three-fourths of a mile from and 75 feet above the Susquehanna River. The hills or mountains on the west have an elevation of 800 to 1,800 feet, 2 or 3 miles from the station, and those on the east, 500 to 800 feet at the same distance.

The thermometers are exposed in a standard shelter of the Weather Bureau pattern, with an elevation of 11 feet above sod, and within the area of shade trees. The rain gage is 60 feet east of the shelter, 30 feet from the branches of trees, and 80 feet from the dwelling. The top of the rain gage is 3 feet above ground. All instruments are well exposed. The monthly mean temperatures were obtained from the daily extremes.

Tabulated data are for the period of observation, September 1, 1889, to December 31, 1902, except average number of days with maximum temperatures above 90° and minimum below 32°, and frost data, which are for the period 1896-1902 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	30	39	67	22	-6	38	26	3.2	9	2.2	6.1
January.....	26	34	64	19	-18	35	17	2.4	0	2.1	1.4
February.....	26	35	63	18	-14	35	18	2.9	10	3.5	5.3
Winter mean.....	27	36		20				8.5	28	7.8	12.8
March.....	34	43	75	26	-13	43	29	3.4	11	3.8	4.1
April.....	47	58	89	37	15	51	44	2.5	9	1.0	2.2
May.....	58	69	90	47	26	63	55	4.1	12	1.2	1.3
Spring mean.....	46	57		37				10.0	32	6.0	7.6
June.....	67	78	92	57	38	70	65	3.2	10	3.5	6.6
July.....	71	81	97	61	42	75	66	3.6	9	4.1	5.4
August.....	69	79	97	59	39	74	66	3.9	9	1.9	2.3
Summer mean.....	69	79		59				10.7	28	9.5	14.3
September.....	62	72	92	52	30	66	58	2.8	9	1.8	8.2
October.....	51	61	87	41	19	57	45	3.4	8	2.0	7.0
November.....	40	49	72	32	10	46	35	2.8	8	3.2	1.0
Fall mean.....	51	61		42				9.0	25	7.0	16.2
Annual mean.....	48	58	97	39	-18			38.2	113	30.3	50.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17, 25; Dec. 29...	July 20.	1900	Feb. 27; Mar. 17, 18...	July 17; Aug. 6-8, 10, 11.
1895	Jan. 1; Feb. 3.....	None.	1901	Jan. 19, 20; Feb. 11;	July 2.
1896	Jan. 6; Feb. 17, 18;	Do.		Dec. 6, 7.	
	Mar. 13, 14; Dec. 28.		1902	Jan. 20; Feb. 6.....	None.
1897	Feb. 1, 14.....	Do.	1903	Feb. 18-20; Dec. 27, 29.	Do.
1898	Feb. 2.....	July 3.			
1899	Jan. 1, 2, 11; Feb. 9-13, 15.	Aug. 21.			

PENNSYLVANIA.

Central Section: CENTER COUNTY. Station: STATE COLLEGE.

Prof. WILLIAM FREAR, Observer.

[Established 1878. Latitude, 40° 55' N. Longitude, 77° 51' W. Elevation, 1,191 feet.]

This station is located near the top of a rolling elevation lying parallel to and nearly midway between the Tussey and Muncy mountain ranges that form the broad Nittany Valley. Immediately to the east-southeast lies the opening by which Penns Valley branches off from Nittany Valley; the Tussey Range is about 3 miles distant on the southeast; the Muncy Range 5 or 6 miles on the northwest; the end of the Nittany Range 2½ miles to the east. The tops of these mountain ranges are from 800 to 1,100 feet higher than the station. The thermometers are exposed in a standard shelter over sod and 16 feet above ground.

The monthly mean temperatures were obtained from tridaily observations until January, 1894; from then till December 31, 1903, from the daily extremes.

Tabulated data are for the period of observation, January 1, 1888, to December 31, 1902, except the average number of days with maximum temperature above 90° and minimum below 32°, which are for the period 1896-1902 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	31	38	64	23	- 4	39	25	3.0	11	2.8	4.1
January.....	27	34	65	19	-17	37	18	2.8	13	4.2	4.1
February.....	26	34	69	19	-20	35	19	2.8	10	0.2	5.3
Winter mean.....	28	35		20				8.6	34	7.2	13.5
March.....	35	42	69	26	- 6	43	29	3.4	13	1.0	4.1
April.....	48	58	88	38	17	52	45	2.9	11	2.2	1.5
May.....	59	69	93	49	27	65	57	4.5	14	2.2	1.9
Spring mean.....	47	56		38				10.8	38	5.4	7.5
June.....	68	78	95	57	30	71	64	4.2	12	6.7	4.2
July.....	71	81	96	60	41	75	65	3.8	11	3.1	5.6
August.....	69	80	96	58	30	75	66	4.0	10	3.7	5.4
Summer mean.....	69	80		58				12.0	33	13.5	15.2
September.....	63	73	93	52	30	68	58	2.8	9	1.8	2.2
October.....	50	60	88	41	20	58	46	3.0	9	1.0	4.4
November.....	40	47	72	32	9	46	35	3.0	11	1.7	3.0
Fall mean.....	51	60		42				8.8	29	4.5	9.6
Annual mean.....	49	58	96	40	-20			40.2	134	30.6	45.8

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 25; Dec. 29.....	July 19.	1899	Jan. 2, 11; Feb. 1, 9-15; Dec. 31.	Aug. 20.
1895	Jan. 5, 13; Feb. 6; Dec. 14.	None.	1900	Feb. 1, 25, 27; Mar. 18..	July 17; Aug. 6, 10.
1896	Feb. 17, 18, 20.....	Do.	1901	Feb. 23; Mar. 6; Dec. 6, 22.	None.
1897	Jan. 25, 26, 31.....	Do.	1902	Feb. 5, 6.....	Do.
1898	Jan. 30; Feb. 2, 4; Dec. 14.	July 3.	1903	Jan. 13; Feb. 18-20....	Do.

PENNSYLVANIA.

Susquehanna Valley: SNYDER COUNTY. Station: SELINS GROVE.

J. M. BOYER, C. E., Observer.

[Established August, 1888. Latitude, 40° 50' N. Longitude, 77° 55' W. Elevation, 455 feet.]

This station is located in the yard of the observer, three-fourths of a mile from the west shore of the Susquehanna River, near the western boundary of Selins Grove. The surroundings are open. Two and one half miles north of the station there is a ridge having an elevation of 280 feet; toward the south the country is practically level for a distance of 7 miles. On the east are hills 1½ miles distant, while 4½ miles to the southeast is the Mahanoy Mountain with a maximum elevation of 996 feet. Sloping toward the station and river, three-fourths of a mile to the west, is a hill with an elevation of 228 feet.

The thermometers are exposed 5½ feet above sod, in a standard shelter of the Weather Bureau pattern, 80 feet west of a 2½-story dwelling and 30 feet east of a one-story stable, with no obstruction on the north or south. The door of the shelter opens toward the north. The rain gage is 20 feet north of the shelter and 30 feet from any obstruction. The top of the gage is 3 feet above the ground. The exposures are excellent. The monthly mean temperatures were obtained from tridaily readings until January, 1894; from then until December 31, 1903, from the daily extremes.

Tabulated data are for the period of observation, August 1, 1888, to December 31, 1902, except frost data, which are for the period 1896 to 1902.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	32	40	69	24	-10	40	25	3.1	9	2.2	4.0
January.....	29	37	26	22	-13	37	19	3.0	8	2.6	8.6
February.....	27	35	58	18	-22	34	18	3.1	9	3.6	3.1
Winter mean.....	29	37		21				9.2	26	8.4	15.7
March.....	38	47	74	28	-11	44	31	4.0	11	3.7	8.4
April.....	50	61	94	38	20	58	46	2.8	9	1.2	1.8
May.....	61	74	96	49	27	68	59	4.8	11	0.7	1.4
Spring mean.....	50	61		38				11.6	31	5.6	11.6
June.....	70	83	99	58	30	74	67	3.8	9	2.1	4.7
July.....	74	86	101	62	40	78	69	4.2	12	3.7	6.7
August.....	72	85	100	59	40	77	69	4.8	9	2.4	7.2
Summer mean.....	72	84		60				12.8	30	8.2	18.6
September.....	64	76	96	52	29	69	62	3.5	8	1.6	4.1
October.....	52	64	90	40	18	59	45	3.6	■	3.6	4.5
November.....	42	51	77	34	16	48	37	3.4	9	3.9	3.8
Fall mean.....	53	64		42				10.5	25	9.1	12.4
Annual mean.....	51	62	101	40	-22			44.1	112	31.3	58.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17; Dec. 28.....	June 30; July 19; Aug. 6.	1900	Mar. 17, 18.....	July 4-7, 15-17; Aug. 6-12, 14.
1895	Feb. 3.....	May 30; June 1; July 20; Sept. 21.	1901	Feb. 2; Dec. 6, 7.....	June 30; July 1-3, 21, 29.
1896	Feb. 17, 18; Mar. 13, 14, 24; Dec. 28.	June 8; Aug. 5-7, 9, 12, 14.	1902	Feb. 6; Dec. 6.....	None.
1897	Jan. 26; Feb. 1.....	July 10; Sept. 11, 13.	1903	Jan. 14, 20; Feb. 18-20; Dec. 12.	Do.
1898	Feb. 4.....	July 1-3, 15, 20; Sept. 1.			
1899	Jan. 2, 3, 11, 12; Feb. 1, 9-11, 15, 16; Dec. 30.	June 6; Aug. 20, 21.			

PENNSYLVANIA.

Eastern Section: CARBON COUNTY. Station: MAUCH CHUNK.

F. C. WINTERMUTE, Observer.

[Established October, 1889. Latitude, 40° 52' N. Longitude, 75° 45' W. Elevation, 634 feet.]

The station is located in East Mauch Chunk on a knoll about 450 feet from and 100 feet above the Schuylkill River, and surrounded by mountains ranging from 500 to 900 feet above the river.

The thermometers are exposed 4½ feet above the sod in a standard shelter of the Weather Bureau pattern, 34 feet from a 2-story dwelling. The door of the shelter opens toward the north.

The rain gage is 5 feet from the shelter and 36 feet from the 2-story house. The top of the rain gage is 3 feet above ground. Both the exposure of the rain gage and the shelter is good. The monthly mean temperatures were obtained from the daily extremes.

Average number of days with maximum temperature above 90° and minimum below 32° are for the period March, 1896, to December, 1902; the remaining data are for the period of observation October 1, 1889, to December 31, 1902.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	31	39	65	22	-5	38	27	4.2	9	5.7	7.9
January.....	27	36	64	19	-13	36	19	3.6	10	5.1	4.5
February.....	28	36	67	19	-14	36	20	4.3	9	2.0	7.2
Winter mean.....	29	37		20				12.1	28	12.8	19.6
March.....	36	45	75	27	-9	44	30	4.7	11	2.5	4.9
April.....	49	60	92	37	14	53	46	3.3	9	6.3	5.4
May.....	60	72	97	48	28	64	58	5.1	12	3.0	0.6
Spring mean.....	48	59		37				13.1	32	11.8	10.9
June.....	69	82	99	56	38	72	65	3.8	10	1.7	8.9
July.....	72	85	104	59	41	77	67	5.2	11	5.4	6.6
August.....	71	83	99	58	36	75	68	4.8	9	2.1	3.6
Summer mean.....	71	83		58				13.8	30	9.2	19.1
September.....	64	76	97	52	30	68	40	3.9	9	1.3	7.9
October.....	51	62	91	41	20	58	47	3.6	9	2.8	5.8
November.....	41	49	74	32	12	46	36	4.0	10	3.0	1.6
Fall mean.....	52	62		42				11.5	28	7.1	15.3
Annual mean.....	51	60	104	39	-14			50.5	118	40.9	64.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1902.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17.....	June 23; July 20.	1899	Jan. 2, 3, 11, 12; Feb. 9-11, 15.	June 6, 7, 14; July 22; Aug. 20, 21.
1895	Feb. 6.....	May 30; June 1; July 20; Aug. 11; Sept. 21.	1900	Feb. 2, 25, 26; Mar. 17, 18.	May 15; June 26; July 6, 7, 15-18; Aug. 6-11.
1896	Jan. 6; Feb. 17; Mar. 13, 14; Dec. 28.	Aug. 5-12.	1901	Jan. 20; Mar. 6, 7; Dec. 7.	June 25, 26, 29, 30; July 1-3, 5, 6, 21, 29.
1897	Feb. 1.....	July 3, 5, 9, 10; Sept. 10.	1902	Feb. 6.....	None.
1898	Feb. 2, 3.....	June 25, 30; July 1-3, 15, 20, 21, 29, 30; Aug. 31; Sept. 1-3.			

PENNSYLVANIA.

Western District: ALLEGHENY COUNTY. Station: PITTSBURG.

FRANK RIDGWAY, Local Forecaster.

[Established by the Signal Service October 13, 1870. Latitude, 40° 32' N. Longitude, 80° 02' W. Elevation, 757 feet.]

The Allegheny and Monongahela rivers, which unite to form the Ohio at Pittsburg, are each about 1,000 feet wide, the width of the Ohio being about 1,200 feet. These rivers occupy depressions averaging 450 feet in depth. The valleys of the rivers from hill to hill within the city limits on the Allegheny and Monongahela range from 0.7 of a mile to 1 mile in width.

The Weather Bureau office is located in the United States custom-house and post-office building, in the business section, 0.8 mile from the junction of the rivers, 0.16 mile from the Monongahela, and 0.45 mile from the Allegheny.

West to northwest winds reach this location with but little obstruction so far as hills are concerned, and winds from the northeast sweep rather freely over most of the business section of the city.

Tabulated data are from the following periods of observation: humidity, 15 years; sunshine, 7 years, greatest depth of snowfall in 24 hours, 20 years. Remainder of data is from 31 years' record, January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p.m.	Absolute, 8 p.m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December	35	42	73	28	-9	46	23	2.8	14	2.0	5.6	6.7	8.0	79	1.80	73	1.86	73	25	NW.
January	31	38	75	24	-12	44	23	2.8	16	1.5	4.2	8.7	16.5	82	1.59	75	1.65	69	23	NW.
February	33	41	77	24	-20	42	21	2.9	15	2.9	5.5	6.4	6.0	81	1.50	73	1.66	81	27	NW.
Winter mean	33	40	75	25	-14	44	22	8.5	45	6.4	15.3	21.8	16.5	81	1.63	74	1.72	74	25	NW.
March	39	48	80	30	1	50	31	3.0	16	2.4	3.9	5.9	15.0	80	1.89	70	2.14	130	35	NW.
April	51	62	90	42	14	57	40	3.0	13	1.2	4.9	1.8	12.7	74	2.71	62	2.90	173	43	NW.
May	63	73	95	52	27	70	57	3.4	14	1.3	5.8	T.	T.	74	3.97	62	4.20	240	53	NW.
Spring mean	51	61	88	41	14	59	43	9.4	43	4.9	14.6	7.7	14.2	76	2.86	65	3.08	181	44	NW.
June	71	82	98	61	39	75	66	3.7	12	3.2	3.4	0.0	0.0	75	5.26	65	5.71	261	58	NW.
July	75	85	103	65	49	80	70	4.6	13	3.4	2.2	0.0	0.0	75	5.98	62	6.18	284	62	NW.
August	73	83	100	63	45	79	70	3.1	9	0.8	4.1	0.0	0.0	78	5.83	60	5.61	287	59	N.
Summer mean	73	83	100	63	44	78	72	11.4	34	7.4	9.7	0.0	0.0	76	5.69	62	5.83	277	60	NW.
September	67	77	102	57	35	77	62	2.5	9	1.0	4.2	0.0	0.0	79	4.69	64	4.94	269	57	NW.
October	56	66	91	46	20	63	50	2.3	10	2.2	5.7	0.1	0.4	79	3.11	62	3.26	187	54	NW.
November	43	51	79	36	4	51	35	2.7	13	3.6	1.1	1.4	3.0	79	2.25	70	2.39	97	32	NW.
Fall mean	55	65	91	46	18	64	49	7.5	32	6.8	11.0	1.5	1.4	79	3.35	65	3.53	184	48	NW.
Annual mean	53	62	103	44	-20	64	44	36.8	154	25.5	50.6	31.0	16.5	78	3.38	66	3.54	179	44	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 29	June 22, 23; July 18, 19, 21.	1899	Feb. 1, 8-14	Aug. 20.
1895	Jan. 12, 13; Feb. 6-9	June 2-4; July 19; Aug. 10.	1900	Feb. 1, 25	July 5, 15-17; Aug. 6, 8-11; Sept. 1, 11.
1896	Jan. 4; Feb. 17, 20	None.	1901	None	July 1, 21, 22, 27-29.
1897	Jan. 25, 26, 28	July 3-5, 10; Sept. 10, 13.	1902	do	None.
1898	None	July 2, 3.	1903	Feb. 19	Do.

PENNSYLVANIA.

Central Section: HUNTINGDON COUNTY. Station: HUNTINGDON.

Prof. W. J. SWIGART, Observer.

[Established November, 1887. Latitude, 40° 29' N. Longitude, 78° 01' W. Elevation, 650 feet.]

Huntingdon is in the central part of Huntingdon County on the north bank of the Juniata River. The river flows through grooves or gaps in Tusseys Mountain 10 miles northwest of Huntingdon and through a gap in Warriors range immediately back of the town. Terrace Mountain ends abruptly at the banks of the Juniata River 4 miles southeast. The mountain rises almost perpendicularly from the river bank to the height of 1,500 feet. Two miles farther to the southeast the river flows through a pass in Jacks Mountain, 1,600 feet high on either side of the river and very steep and rugged. The station equipment consists of a standard rain gage, a set of maximum and minimum thermometers which are exposed in a standard shelter of the Weather Bureau pattern, 4½ feet above the ground, in the south campus of Juniata College, and about 75 feet from Oneida Hall. The top of the rain gage is 3 feet above the ground. All the instruments are well exposed.

The monthly mean temperatures were obtained from tri-daily readings until March, 1891; from then till December 31, 1903, from the daily extremes.

Tabulated data are for the period of observation, January 1, 1888, to December 31, 1902, except the average number of days with maximum temperature above 90° and minimum below 32°, which are for the period 1896 to 1902 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	33	42	68	23	-4	40	29	3.2	9	3.0	3.4
January.....	29	38	72	20	-17	38	20	3.1	10	5.2	3.0
February.....	29	38	68	20	-23	38	21	3.0	8	0.5	5.2
Winter mean.....	30	39		21				9.3	27	8.7	11.6
March.....	38	44	82	27	-7	46	32	3.6	10	1.4	3.6
April.....	49	62	93	37	16	54	46	3.1	9	2.0	4.9
May.....	60	74	98	47	22	66	58	5.3	13	3.0	6.4
Spring mean.....	49	60		37				12.0	32	6.4	14.9
June.....	69	83	99	56	36	74	65	4.2	11	4.8	4.2
July.....	72	86	104	59	33	76	68	3.8	11	3.2	4.6
August.....	71	85	101	57	38	76	68	3.6	8	1.5	4.4
Summer mean.....	71	85		57				11.6	30	9.5	13.2
September.....	64	78	99	50	31	70	59	3.4	8	1.3	3.6
October.....	52	65	92	38	17	59	46	3.1	8	1.1	5.0
November.....	42	52	78	32	10	50	37	2.8	8	1.1	1.4
Fall mean.....	53	65		40				9.3	24	3.5	10.0
Annual mean.....	51	62	104	39	-23			42.2	113	28.1	49.7

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1902.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17; Dec. 29.....	June 24; July 19; Aug. 2.	1899	Jan. 2, 3, 11; Feb. 1, 9-11, 15.	May 1; June 5-7, 23, 24; July 3; Aug. 20, 21.
1895	Jan. 5; Feb. 3; Dec. 14.	May 30; June 3, 4; July 20, 21; Aug. 10, 11.	1900	Mar. 17, 18.....	June 26; July 4-7, 15-17. Aug. 6-12, 18, 26; Sept. 11.
1896	Feb. 17; Mar. 14, 24...	Aug. 6, 9; Sept. 11.	1901	Mar. 7.....	June 29, 30; July 1, 2, 11, 21, 23, 29; Aug. 22.
1897	Jan. 31; Feb. 1.....	July 5, 10; Sept. 9-11, 15, 16.	1902	Feb. 6.....	July 6; Aug. 30, 31; Sept. 1, 2.
1898	Feb. 4.....	June 30; July 1-3, 8, 15, 16, 18, 31; Aug. 24, 31; Sept. 1-4.			

PENNSYLVANIA.

Southeastern District: LEBANON COUNTY. Station: LEBANON.

G. W. HAYES, Observer.

[Established January 1, 1888. Latitude, 40° 20' N. Longitude, 76° 25' W. Elevation, 458 feet.]

This station is located in the northwestern part of the city of Lebanon, near the center of Lebanon County in the Lebanon Valley, between the South Mountains on the south and the Blue Mountains on the north, the valley being divided into smaller and lesser valleys by lines of hills parallel with the ensconcing mountains. The mountains on the south and about 6 miles distant have an elevation of from 400 to 500 feet and those on the north, about 11 miles distant, an elevation of from 500 to 600 feet. The thermometers are exposed in a standard shelter of the Weather Bureau pattern 45 feet west of a dwelling and about 4½ feet above the sod. The rain gage is 40 feet north of the shelter, with no large trees near and at a distance of 40 feet from the dwelling. The rain gage is 3 feet above the ground. All of the instruments have good exposure.

The monthly mean temperatures were obtained from tri-daily readings until January, 1894; from then till December 31, 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	33	41	68	24	1	39	28	3.6	10	4.1	2.2
January.....	28	36	66	20	-14	36	19	3.5	12	4.7	4.3
February.....	29	37	70	21	-16	38	22	3.6	12	0.9	1.8
Winter mean.....	30	38	.....	22	.....	.....	.....	10.7	34	9.7	8.3
March.....	37	47	78	29	-10	46	32	3.9	13	2.5	3.4
April.....	50	62	95	38	17	54	48	3.2	11	5.1	5.5
May.....	60	78	96	43	30	65	57	5.2	14	1.8	5.5
Spring mean.....	49	62	.....	37	.....	.....	.....	12.3	38	9.4	14.4
June.....	70	82	98	58	38	73	66	3.6	11	1.9	4.3
July.....	73	85	104	62	43	78	66	4.5	12	2.1	8.7
August.....	72	84	103	60	40	77	69	4.5	10	2.0	3.1
Summer mean.....	72	84	.....	60	.....	.....	.....	12.6	33	6.0	16.1
September.....	65	77	98	54	33	70	61	3.0	10	1.3	3.4
October.....	53	64	92	42	22	60	48	3.8	9	2.3	4.5
November.....	42	51	76	34	13	48	37	3.5	10	2.0	10.0
Fall mean.....	53	64	.....	43	.....	.....	.....	10.3	29	5.6	17.9
Annual mean.....	51	62	104	40	-16	.....	.....	45.9	134	30.7	56.7

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17.....	June 23; July 1.	1900	Mar. 18.....	July 4, 5, 7, 15-18; Aug. 6-12
1895	Jan. 31; Feb. 3.....	May 30; June 1, 3; July 20; Aug. 11.	1901	None.....	June 26, 27, 29, 30; July 1-3, 6, 23, 29.
1896	Feb. 17; Mar. 13, 14....	Apr. 18; May 9, 10; Aug. 6, 9, 11, 12.	1902	Feb. 5.....	June 13.
1897	None.....	June 30; July 6, 7, 10; Sept. 10, 11.	1903	None.....	None.
1898	Feb. 4.....	June 25, 26; July 1-4, 16, 18, 20, 21; Sept. 12.			
1899	Jan. 2, 3; Feb. 1, 9-11, 15.	June 6; July 22; Aug. 21, 22.			

PENNSYLVANIA.

Southeastern District: BUCKS COUNTY. Station: QUAKERSTOWN.

J. L. HEACOCK, Observer.

[Established 1872. Latitude, 40° 26' N. Longitude, 75° 21' W. Elevation, 536 feet.]

This station is located in the northern part of Bucks County, near the dividing line of the watersheds of the Schuylkill and Delaware rivers, and near the center of a plateau surrounded by trap-rock hills of an average height of 800 feet and about 6 miles distant.

The thermometers are exposed 4 feet above the sod, in a standard shelter of the Weather Bureau pattern, beyond the influence of surrounding objects. The exposure of the rain gage is good, its top being 3 feet above ground.

Mr. J. L. Heacock has kept continuous records of temperature and precipitation since 1872.

The monthly mean temperatures were obtained from tri-daily readings till January, 1894; from then until December 31, 1903, from the daily extremes.

Average number of days with maximum temperatures above 90° and minimum below 32° are for seven years; mean temperature, for twenty-eight years; mean precipitation, for thirty-one years. The remaining tabulated data are for the period of observation, December 1, 1887, to December 31, 1902.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	32	40	67	23	- 5	41	23	3.4	9	3.2	2.4
January.....	27	37	70	20	-14	38	18	3.4	10	3.7	4.6
February.....	28	37	69	19	-15	38	20	4.0	11	1.5	2.4
Winter mean.....	29	38		21				10.8		8.4	9.4
March.....	36	46	75	27	- 3	44	26	3.8	13	2.7	3.8
April.....	48	60	92	37	15	54	44	3.1	9	5.4	4.8
May.....	59	72	95	48	29	65	52	4.4	12	3.6	5.6
Spring mean.....	48	59		37				11.3	34	11.7	14.2
June.....	68	82	98	56	39	77	63	3.3	10	3.5	7.3
July.....	72	86	105	61	42	78	63	4.7	12	4.6	11.5
August.....	70	84	98	59	42	76	66	4.3	10	2.1	4.8
Summer mean.....	70	84		59				12.3	32	10.2	23.6
September.....	64	76	98	53	33	73	56	4.0	9	0.9	8.1
October.....	52	63	91	42	21	59	46	3.4	9	3.4	5.2
November.....	41	51	76	33	10	50	35	3.4	10	2.6	8.9
Fall mean.....	52	63		43				10.8	28	6.9	22.2
Annual mean.....	50	61	105	40	-15			45.2	124	37.2	69.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1902.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17.....	June 23; July 28.	1899	Jan. 2, 3; Feb. 9-12....	June 6, 7, 15; July 21, 22; Aug. 21.
1895	Feb. 6.....	May 30; Aug. 11; Sept. 21.	1900	Jan. 30; Feb. 2, 3; Mar. 18.	June 27; July 6, 7, 12, 15-18; Aug. 6-8, 10-12.
1896	Feb. 17; Mar. 14.....	Aug. 6, 7, 9.	1901	None.....	June 30; July 1-3, 6, 21, 24, 29.
1897	None.....	July 10; Sept. 10.	1902	.....do.....	None.
1898	Feb. 3-4.....	June 25, 26; July 1-4, 15, 17, 21, 30; Sept. 1-3.			

PENNSYLVANIA.

Western District (southwest portion): DAUPHIN COUNTY. Station: HARRISBURG.

E. R. DEMAINE, Observer.

[Established by Signal Service July 1, 1888. Latitude, 40° 16' N. Longitude, 76° 52' W. Elevation, 337 feet.]

This station is located in the post-office building, corner Third and Walnut streets, in the city of Harrisburg. The building stands near the capitol grounds, on a gentle slope upward, eastward, and 2 blocks distant from the Susquehanna River. The top of the building overlooks the city and the river valley, and 5 or 6 miles west of the station a low range of the Blue Mountains stretches from northeast to southwest. The roof is higher than any of the surrounding buildings and is at quite a distance from the manufacturing districts; so that there is practically nothing to interfere with the free exposure of the instruments.

The instruments exposed on the roof are anemometer, the wind vane, the tipping bucket rain gage, the snow gage, the thermometric sunshine recorder, the Richards thermograph, and the thermometers. The anemometer and wind vane are on an 18-foot support. The top of the rain gage is 5.4 feet above the roof.

Sunshine data are for seven years, 1897-1903; remainder of data is from the full period, fifteen years, July 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p.m.	Absolute, 8 p.m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	33	39	66	28	4	40	28	2.6	10	3.4	2.1	4.6	8.4	77	1.56	74	1.82	126	43	W.
January.....	30	35	67	24	4	38	21	2.8	11	3.8	2.9	6.3	5.2	77	1.36	75	1.58	120	40	W.
February.....	30	36	74	24	13	38	23	3.0	10	0.5	1.5	9.2	12.0	75	1.27	72	1.64	158	53	NW.
Winter mean.....	31	37	.....	25	.....	.....	.....	8.4	31	7.7	6.5	20.1	.....	76	1.40	74	1.68	135	45	W
March.....	39	46	76	32	5	47	33	3.2	12	1.9	3.3	7.5	18.0	74	1.75	69	2.04	181	49	NW.
April.....	51	60	92	42	22	54	48	2.5	10	3.7	4.0	1.4	13.0	67	2.46	61	2.76	237	59	NW.
May.....	62	71	95	53	34	66	59	4.2	13	2.0	9.5	T.	T.	70	3.89	66	4.33	273	61	W.
Spring mean.....	51	59	.....	42	.....	.....	.....	9.9	35	7.6	16.8	8.9	.....	70	2.70	65	3.04	230	56	NW.
June.....	70	80	97	61	43	73	65	3.4	12	1.7	7.2	0.0	0.0	73	5.46	70	5.96	268	60	W.
July.....	74	83	101	65	50	78	70	3.9	11	1.2	8.7	0.0	0.0	74	6.10	67	6.27	287	63	W.
August.....	73	82	98	64	50	78	69	4.2	10	2.4	3.6	0.0	0.0	78	6.03	70	6.15	269	63	W.
Summer mean.....	72	82	.....	63	.....	.....	.....	11.5	33	5.3	19.5	0.0	.....	75	5.86	69	6.13	275	62	W.
September.....	66	75	95	57	36	71	62	2.8	9	2.2	4.5	0.0	0.0	80	4.91	73	5.12	252	68	W.
October.....	54	62	88	46	28	61	49	2.9	9	1.6	3.3	T.	T.	79	3.22	70	3.28	187	54	W.
November.....	43	50	75	37	14	49	38	2.6	10	1.7	6.6	1.3	4.8	78	2.14	72	2.37	128	43	W.
Fall mean.....	54	62	.....	47	.....	.....	.....	8.3	28	5.5	14.4	1.3	.....	79	3.42	72	3.59	189	55	W.
Annual mean.....	52	60	101	44	13	.....	.....	38.1	127	26.1	57.2	30.3	18.0	75	3.35	70	3.61	207	55	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	None.....	June 23, 24; July 20, 28.	1899	Feb. 9-11, 15.....	June 6; Aug. 20.
1895	Feb. 6, 8.....	June 1-3; Aug. 10, 11.	1900	None.....	July 5-7, 17; Aug. 6-12, 15.
1896	Feb. 17.....	None.	1901	.....do.....	June 30; July 1-3.
1897	None.....	Do.	1902	.....do.....	July 17.
1898	.....do.....	June 25; July 1-3.	1903	.....do.....	None.

PENNSYLVANIA.

Southern Section: YORK COUNTY. Station: YORK.

Mrs. L. H. GREENEWALD, Observer

[Established January, 1888. Latitude, 39° 50' N. Longitude, 76° 41' W. Elevation, 385 feet.]

The station is located in the western suburb of York city. The thermometers are exposed 20 feet above the sod, in a standard shelter of the Weather Bureau pattern, on the southwest angle of an extended dwelling balcony, corner of West Philadelphia and Carlisle streets. The rain gage has a ground exposure 50 feet from the building. Its top is 3 feet above the ground. Both exposures are good.

The monthly mean temperatures were obtained from tridaily observations till January, 1891; from then until December 31, 1903, from the daily extremes. Tabulated data are for the period of observation January 1, 1888, to December 31, 1902, except frost data, which are for the period 1896-1902, only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.			
	Mean.	Mean of the maxi-ma.	Absol-ute maxi-mum.	Mean of the mini-ma.	Absol-ute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	33	42	68	25	- 1	41	29	3.1	9	3.3	6.2
January.....	30	37	66	21	-14	40	20	2.9	10	4.0	2.7
February.....	29	38	70	21	-17	39	21	3.4	12	1.0	6.7
Winter mean.....	31	39	.....	22	.....	.....	.....	9.4	31	8.3	15.6
March.....	39	49	80	29	- 5	46	33	3.8	12	2.5	4.8
April.....	50	62	94	39	16	55	47	2.6	10	3.7	3.4
May.....	62	73	95	50	31	66	60	4.3	13	2.7	1.2
Spring mean.....	50	61	.....	39	.....	.....	.....	10.7	35	8.9	9.4
June.....	70	83	103	59	38	74	66	3.3	11	3.1	5.2
July.....	75	86	107	53	43	80	70	4.1	9	1.4	5.7
August.....	73	84	102	61	42	77	70	4.1	9	2.4	4.2
Summer mean.....	73	84	.....	58	.....	.....	.....	11.5	29	6.9	15.1
September.....	66	77	95	55	20	70	62	3.8	8	4.0	4.1
October.....	53	64	88	42	20	59	48	3.1	8	2.4	6.4
November.....	43	52	77	34	10	50	38	3.4	9	1.8	2.4
Fall mean.....	54	64	.....	44	.....	.....	.....	10.3	25	8.2	12.9
Annual mean.....	52	62	107	41	-17	.....	.....	41.9	120	32.3	53.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 17; Dec. 29.....	June 24; July 20.	1899	June 2, 3.....	June 6, 7; July 22; Aug. 20.
1895	Feb. 3.....	May 30; June 1; July 20; Aug. 11; Sept. 22, 23.	1900	Mar. 18.....	July 4-7, 15-18, 21; Aug. 6-13, 15, 26.
1896	Mar. 13, 14.....	Aug. 5, 6, 12.	1901	None.....	June 26-30; July 1-3, 5, 6, 21, 22, 24, 25, 29, 30; Aug. 10.
1897	None.....	July 6; Sept. 10.	1902	.....do.....	June 3, 12, 13, 15; July 6, 17.
1898	.....do.....	June 25; July 1-4, 15, 29.	1903	Feb. 19, 20.....	July 3, 9-11, 30; Aug. 25.

PENNSYLVANIA.

Southeastern District: CHESTER COUNTY. Station: WEST CHESTER.

JESSE C. GREEN, D. D. S., Observer.

[Established December, 1887. Latitude, 39° 57' N. Longitude, 75° 39' W. Elevation, 460 feet.]

This station is on the dividing line between the Brandywine (2 miles distant) and Chester creeks, which empty into the Delaware river, the former at Wilmington, Del., and the latter at Chester, Pa. The station is on high ground, about 200 feet above the Brandywine, to the west. The Welsh Mountains are some 15 miles to the northwest.

The thermometers are exposed in a "Swedish" weather house (very similar to the Weather Bureau shelter) 4 feet 3 inches above the ground, and 9 feet from a one-story brick building, with the door of the shelter opening toward the north. The rain gage is 9 feet north of the shelter. The top of the gage is 3 feet above the ground. The exposures are good.

The monthly mean temperatures were obtained from tridaily readings until January 1, 1894; from then till December 31, 1903, from the daily extremes.

The record of monthly mean temperature is for forty-eight years, and monthly mean precipitation for forty-three years: the remaining tabulated data are for the period of observation December 1, 1887, to December 31, 1902, except the average number of days with maximum temperatures above 90°, and minimum below 32°, which are for the period 1896-1902, only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	33	42	67	27	4	42	30	3.9	11	3.1	2.0
January.....	30	38	72	24	-4	40	20	4.0	13	5.0	4.8
February.....	31	37	69	23	-12	39	23	4.3	12	1.6	2.5
Winter mean.....	31	39		25				12.2	36	9.7	9.3
March.....	38	46	77	30	6	46	33	4.5	14	3.4	5.4
April.....	49	60	92	41	18	54	48	3.7	11	5.4	5.5
May.....	60	70	92	52	30	66	59	4.6	15	3.3	5.8
Spring mean.....	49	59		41				12.8	40	12.1	16.7
June.....	70	79	95	62	44	73	67	4.0	11	2.5	5.4
July.....	74	83	100	66	51	78	69	4.9	12	1.7	12.5
August.....	72	82	97	65	46	77	70	4.4	12	2.3	4.4
Summer mean.....	72	81		64				13.3	35	6.5	22.3
September.....	65	75	97	58	36	71	63	4.4	11	0.6	10.0
October.....	54	63	89	46	28	60	50	3.8	9	2.6	5.0
November.....	43	52	75	36	12	50	39	4.0	12	1.6	9.9
Fall mean.....	54	63		47				12.2	32	4.8	24.9
Annual mean.....	52	61	100	44	-12			50.5	143	33.1	73.2

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1902.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	None.....	June 24.	1899	Feb. 9-11.....	July 6; Aug. 22.
1895	Feb. 6.....	June 1; Aug. 11; Sept. 22.	1900	None.....	July 16-18; Aug. 11, 12.
1896	Feb. 17.....	Aug. 6, 9.	1901	.....do.....	June 30; July 1-3, 6, 29.
1897	None.....	None.	1902	.....do.....	None.
1898	.....do.....	July 1, 3, 4.			

PENNSYLVANIA.

Southeastern District. Station: PHILADELPHIA.

T. F. TOWNSEND, Section Director.

[Established by the Signal Service December, 1870. Latitude, 39° 57' N. Longitude, 75° 09' W. Elevation, 42 feet.]

Philadelphia is situated on the west bank of the Delaware River, 75 miles from its mouth and 60 miles from the Atlantic Ocean. Between the city and the New Jersey coast line the country is nearly level and without any greatly elevated hills.

Within the city limits there are about 20 distinct series of temperature observations of greater or lesser length and aggregating over two hundred and fifty years. Many of these have been carefully made, kept, and compiled.

The records of precipitation are less extensive than those of temperature, but for many recent years a good number of the several series of temperature were accompanied by records of precipitation.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	36	43	70	29	- 5	44	25	3.0	10	2.6	1.4	3.3	6.0	75	1.70	68	1.78	158	55	NW.
January.....	32	39	72	25	- 5	42	24	3.3	12	3.7	5.8	6.1	10.0	77	1.49	70	1.54	149	50	NW.
February.....	34	41	75	26	- 6	41	24	3.4	12	4.8	4.8	7.7	17.7	76	1.40	69	1.63	162	53	NW.
Winter mean.....	34	41	.....	27	.....	.....	.....	9.7	34	11.1	12.0	17.1	.....	76	1.53	69	1.65	156	53	NW.
March.....	40	48	77	32	5	49	31	3.4	13	3.8	2.0	2.7	10.0	72	1.70	65	1.99	189	51	NW.
April.....	51	60	93	42	18	57	42	2.9	11	0.6	3.5	0.4	1.2	68	2.58	60	2.72	222	55	NW.
May.....	62	72	96	53	36	69	57	3.2	12	2.7	5.8	0.0	0.0	70	4.02	66	4.18	260	58	SW.
Spring mean.....	51	60	.....	42	.....	.....	.....	9.5	36	7.1	11.3	4.1	.....	70	2.77	64	2.96	224	55	NW.
June.....	72	81	98	63	47	75	66	3.2	10	3.9	0.9	0.0	0.0	72	5.56	66	5.38	270	61	SW.
July.....	76	85	103	69	54	81	72	4.2	12	1.0	5.8	0.0	0.0	73	6.41	67	6.46	285	63	SW.
August.....	74	82	101	66	51	79	71	4.5	10	1.2	11.5	0.0	0.0	75	6.18	68	6.36	270	63	SW.
Summer mean.....	74	83	.....	66	.....	.....	.....	11.9	32	6.1	18.2	0.0	.....	73	6.05	67	6.07	275	62	SW.
September.....	68	76	102	60	40	75	63	3.3	9	0.9	3.6	0.0	0.0	78	6.28	71	5.31	246	66	SW.
October.....	57	65	87	49	31	62	51	3.0	9	3.0	5.8	T.	T.	76	3.32	68	3.52	208	60	NW.
November.....	45	52	77	38	8	50	38	3.2	10	2.0	5.1	1.0	9.2	76	2.32	70	2.48	156	53	NW.
Fall mean.....	57	64	.....	49	.....	.....	.....	9.5	28	5.9	14.5	1.0	.....	77	3.97	70	3.77	203	60	NW.
Annual mean.....	54	62	103	46	- 6	.....	.....	40.6	130	30.2	56.0	22.2	17.7	74	3.58	67	3.61	215	57	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	None.....	June 23, 24; July 27-29.	1899	Feb. 9-11.....	June 6, 7; July 22; Aug. 21
1895	Feb. 6, 8.....	June 1-3; Aug. 10, 11.	1900	None.....	July 5, 6, 16-18; Aug. 6-8, 11, 12, 27.
1896	Feb. 17.....	Aug. 6-9, 11, 12.	1901	.....do.....	June 29, 30; July 1-3, 6, 29, 30.
1897	None.....	Sept. 10.	1902	.....do.....	July 9.
1898	.....do.....	July 1-4; Sept. 1.	1903	.....do.....	July 9, 10.

MARYLAND AND DELAWARE.

By Dr. OLIVER L. FASSIG,
Section Director.

MARYLAND AND DELAWARE.

Topography.—The area embracing the States of Maryland and Delaware is marked by three distinct physiographic divisions. From the Atlantic Ocean the country rises at first very slowly, then more rapidly as we proceed westward, culminating in elevations of 3,000 feet in the westernmost county of Maryland.

The eastern division, or Coastal Plain province, is characterized by broad level stretches of slight elevation, with the Chesapeake Bay near its center, and deeply indented with tidal estuaries and bays, forming navigable waterways to nearly all the commercial centers within the broad peninsula embracing the Eastern Shore of Maryland and the State of Delaware.

The North Central division, or Piedmont Plateau, borders the Coastal Plain on the west, forming a marked line of division extending from Philadelphia southwestward through Baltimore and Washington. Westward it extends in a broken, hilly country, with gently undulating surface, to the foot of the Appalachian system.

The Western, or Appalachian, division is characterized by parallel, even-topped ranges, extending generally in a north-east-southwest direction and reaching elevations varying from 1,500 to 3,000 feet. The two most conspicuous features of this division are the Great Valley in Washington County and the Alleghany Plateau in Garrett County.

The variety of surface configurations and soil conditions is very marked considering the limited area embraced. These varied physical features have doubtless largely influenced the character and pursuits of the people of these States.

The low tide-water districts of the eastern shore of southern Maryland and the western shore are especially adapted to fruit growing and trucking. In the Piedmont Plateau and the northern counties of the eastern shore and of Delaware the cereals and grasses thrive to best advantage. This section embraces also a large variety of building stones of great value. In the Appalachian region of western Maryland the development of its rich mineral resources leads all other pursuits. The deposits of coal are especially rich and abundant. Chesapeake Bay with its tributaries is renowned for its oysters, crabs, terrapin, and shad.

Climate.—As might be inferred from the marked differences in the physiographic conditions of Maryland, there are equally marked variations in the climatic conditions as we pass westward and northward from the extreme southeast portion of the State. In the level and low areas of the tide-water districts summer conditions prevail during an appreciably longer period, and the season is milder than in the mountainous western portions. The average date of appearance of a temperature which marks the beginning of plant growth is at least a month earlier in southern Maryland than in the extreme western portion of the State. In the latter frosts have been recorded in almost every month of the year; in the former the period from April 15 to November 1 is practically free from injurious frosts.

Temperature.—The mean annual temperature of the area embracing the States of Maryland and Delaware varies from 53° in the extreme southeastern counties to 47° in Garrett County, on the Alleghany Plateau. The mean annual temperature at Baltimore, namely, 55°, fairly represents the average for the entire area. The winter average ranges from 40° to 27°; the summer from 76° to 66°. The variability of mean monthly temperatures from the normal value is shown below for the horizon of Baltimore, and as the city is located near the center of the State its climatic conditions may be assumed to represent fairly the general conditions over the entire section.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.
Normal.....	35	36	43	54	64	73	78	76	69	57	47	37	55.6
Warmest year (departure).....	+ 9	+10	+ 7	+8	+8	+6	+6	+5	+9	+7	+8	+ 8	+3.2
Coldest year (departure).....	-11	-10	-12	-7	-5	-6	-6	-5	-7	-9	-7	-10	-3.8
Range.....	20	20	19	15	13	12	12	10	16	16	15	18	7.0

Precipitation.—Precipitation is abundant for crop growth in all parts of the two States and at all seasons of the year. The annual rainfall varies from 33 inches in Washington County to over 50 inches in Garrett County. The average for the entire State is about 44 inches, distributed as follows by seasons: Spring and summer about 12 inches; autumn and winter about 10 inches.

The following table presents a general summary of the temperature and rainfall conditions of the area embracing the States of Maryland and Delaware, also the average cloudiness and the prevailing winds and storm frequency for each month and the year.

CLIMATIC SUMMARY—MARYLAND AND DELAWARE.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
TEMPERATURE.													
Western division.....	29	30	39	49	61	70	73	72	66	52	41	33	51
Northern central division.....	30	32	41	51	63	72	76	74	67	54	44	36	53
Southern division.....	33	35	43	53	65	74	78	76	70	57	47	38	56
Eastern division and Delaware..	34	35	43	53	64	73	77	75	69	56	46	39	55
Highest recorded.....	76	78	84	99	100	102	109	103	104	92	86	74	100
Lowest recorded.....	-24	-26	-13	6	20	20	32	31	22	4	-6	-20	26
Mean daily range.....	15	16	18	20	19	19	18	20	19	19	17	16	18
PRECIPITATION AND WEATHER.													
Annual precipitation.....	3.0	3.6	3.9	3.5	4.3	3.5	4.8	3.8	3.3	3.4	3.3	3.0	43.4
Average number of rainy days...	15	12	15	14	18	14	16	13	11	9	14	11	14
Maximum number of rainy days...	24	18	19	20	22	22	24	18	17	15	18	15	19
Minimum number of rainy days...	7	7	8	11	13	17	10	8	5	3	11	6	8
Average annual snowfall.....	6.6	5.7	5.0	1.4	0.4	0	0	0	0	0	3.7	2.6	25.4
Number of clear days.....	8	8	9	9	10	10	10	11	12	12	10	9	118
Number of partly cloudy days....	12	11	12	12	11	13	13	13	11	11	10	12	141
Number of cloudy days.....	11	9	10	9	10	7	8	7	7	8	10	10	106
WINDS, THUNDERSTORMS, ETC.													
Prevailing winds.....	NW.	NW.	NW.	NW.	Var.	Var.	SW.	SW.	Var.	NW.	NW.	NW.	NW.
Average number of thunderstorms.....	2	1	7	8	18	18	19	17	10	3	3	1	107
Average number of hailstorms....	0.0	0.0	1.0	1.6	3.4	2.4	4.6	3.2	1.2	1.0	0.8	0.0	19
Average number of storms.....	4	6	7	5	3	2	2	1	2	3	4	4	43

^a Number of days with maximum velocity of 25 miles or over at Baltimore.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
MARYLAND.				MARYLAND—continued.			
Allegany.....	Cumberland.....	Western.....	236	Queen Anne (see Easton)	.....	Eastern.....	.....
Anne Arundel (see Washington, D. C.).	.....	Southern.....	.....	St. Mary (see Solomons)	.....	Southern.....	.....
Baltimore.....	Baltimore City...	North central..	240	Somerset.....	Princess Anne...	Eastern.....	244
Calvert.....	Solomons.....	Southern.....	243	Talbot.....	Easton.....	do.....	242
Caroline (see Easton).....	.....	Eastern.....	.....	Washington.....	Green Spring Furnace.	Western.....	237
Carroll (see New Market).....	.....	North central..	.....	.....	.....	.....	.....
Cecil (see Darlington).....	.....	do.....	.....	Wicomico (see Princess Anne).	.....	Eastern.....	.....
Charles (see Solomons).....	.....	Southern.....	.....	Worcester (see Millsboro, Del.).	.....	do.....	.....
Dorchester (see Easton).....	.....	Eastern.....	.....	DELAWARE.			
Frederick.....	New Market.....	North central..	238	Kent (see Chestertown, Md.).	.....	Central.....	.....
Garrett.....	Grantsville.....	Western.....	235	New Castle (see Darlington, Md.).	.....	Northern.....	.....
Harford.....	Darlington.....	North central..	239	Sussex.....	Millsboro.....	Southern.....	234
Howard (see Baltimore).....	.....	do.....	.....	.....	.....	.....	.....
Kent.....	Chestertown.....	Eastern.....	241	.....	.....	.....	.....
Montgomery (see Washington, D. C.).	.....	North central..	.....	.....	.....	.....	.....
Prince George (see Washington, D. C.).	.....	Southern.....	.....	.....	.....	.....	.....

DELAWARE.

Southern Division: SUSSEX COUNTY. Station: MILLSBORO.

Rev. LEWIS WHEELER WELLS, Observer.

[Established by the Maryland State weather service and the United States Weather Bureau in March, 1890. Latitude, 38° 40' N. Longitude, 75° 20' W. Elevation, 20 feet.]

The town of Millsboro is in the southeast quadrant of Sussex County, Del. It lies at the head of Indian River, an estuary of the Atlantic, and about 15 miles west from the coast. The station is on the edge of the town. The surrounding country is flat and open, nowhere exceeding an elevation of 20 to 30 feet.

The thermometer shelter is of the Weather Bureau pattern and is mounted about 4 feet above the ground. It has a fine, free exposure. The maximum and minimum thermometers are Weather Bureau instruments.

The rain gage rests upon the ground in an open field. Monthly mean temperatures were computed from the daily extremes. Mean of maxima and mean of minima temperatures, average number of days with maximum temperature above 90°, and minimum below 32°, snowfall, and wind direction, are for the period of observation 1893 to 1903. The remaining data are for the period March 1, 1890, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	37	46	70	28	1	44	32	3.6	8	3.7	2.6	2.0	6.0	NW.
January.....	34	43	66	25	-17	38	23	3.5	10	3.0	6.5	5.2	9.5	N.
February.....	34	42	74	24	-10	43	25	4.3	10	3.1	6.0	8.0	15.0	N.
Winter mean.....	35	44		26				11.4	28	9.8	15.1	15.2		NW.
March.....	43	54	82	34	10	51	38	4.5	11	4.3	9.4	2.5	9.5	N.
April.....	52	62	99	42	22	55	48	4.0	9	2.5	3.0	T.	T.	NE.
May.....	63	73	97	53	31	68	60	3.7	12	4.9	5.2	0.0	0.0	NE.
Spring mean.....	53	63		43				12.2	32	11.7	17.6	2.5		NE.
June.....	71	81	100	61	40	75	66	2.9	9	4.0	1.7	0.	0.0	N.
July.....	76	86	101	67	46	80	71	5.4	11	2.6	12.6	0.	0.0	SW.
August.....	74	84	104	66	48	79	72	4.6	8	2.9	10.5	0.	0.0	S.
Summer mean.....	74	84		65				12.9	28	9.5	24.8	0.0		S.
September.....	68	78	95	59	37	72	65	3.5	7	1.8	3.0	0.0	0.0	NE.
October.....	57	67	87	48	26	61	51	4.4	8	2.7	6.4	T.	T.	NE.
November.....	46	56	80	37	10	54	40	2.9	8	3.8	2.5	0.3	2.0	NW.
Fall mean.....	57	67		48				10.8	23	8.3	11.9	0.3		NE.
Annual mean.....	55	64	104	45	-17			47.3	111	39.3	69.4	18.0	15.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 29.....	June 23, 24; July 14, 29.	1900	Jan. 4; Feb. 1-3, 19, 20, 26-28.	May 15, 16; June 27, 28; July 5-9, 16-19, 22; Aug. 8-13, 17, 27; Sept. 9, 13.
1895	Feb. 3, 5-9, 11, 12, 18.....	May 31; June 1-3; July 18, 21; Aug. 9-11, 29; Sept. 23.	1901	Jan. 6, 7, 20, 21; Feb. 24-26; Mar. 7; Dec. 22, 23.	July 1-7, 30, 31.
1896	Jan. 5, 6; Feb. 17, 21, 22; Dec. 25.	Apr. 19; Aug. 7, 8, 10-13.	1902	Jan. 5; Feb. 5, 6, 20, 21.	June 14, July 19, 21.
1897	Jan. 25, 26, 29-31.	None.	1903	Feb. 19, 20; Dec. 12, 27.	July 9-11, 21; Aug. 24, 25.
1898	Feb. 2, 4; Dec. 14, 15..	June 27, 29; July 2-5.			
1899	Jan. 2, 3, 11, 12, 29, 31; Feb. 1-3, 9-16; Dec. 29-31.	June 7, 9.			

MARYLAND.

Western Division: GARRETT COUNTY. Station: GRANTSVILLE.

JACOB B. MILLER, Observer.

[Established by the Maryland State weather service and the United States Weather Bureau, in August, 1894. Latitude, 39° 43' N. Longitude, 79° 10' W. Elevation, 2,400 feet.]

The station is situated in the northeast quadrant of the county, in a broad undulating valley between ridges rising 400 to 500 feet above the station at distances of 3 to 4 miles to the east and west.

The instrument shelter is of the standard Weather Bureau pattern, and is mounted about 4 feet above ground. The shelter contains Weather Bureau maximum and minimum thermometers, and has a free exposure.

The rain gage rests upon the ground about 10 feet from the instrument shelter.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	29	37	64	21	- 8	33	22	3.6	10	3.0	2.7	11.7	15.0	W.
January.....	26	34	72	18	-14	31	23	3.5	10	5.4	6.5	16.1	10.0	W.
February.....	24	33	69	15	-22	29	18	3.7	11	1.4	2.1	15.2	8.0	W.
Winter mean.....	26	35		18				10.8	31	9.8	11.3	43.0		W.
March.....	37	47	76	27	- 5	45	29	4.7	11	3.1	7.0	15.1	15.0	W.
April.....	46	57	87	35	12	52	42	3.5	9	4.2	3.4	7.7	16.0	E.
May.....	58	70	89	45	25	62	53	4.1	11	2.3	3.9	0.2	1.5	S.
Spring mean.....	47	58		36				12.3	31	9.6	14.3	23.0		W.
June.....	64	76	90	52	29	66	59	4.3	12	4.1	3.1	0.0	0.0	S.
July.....	69	81	94	57	37	73	64	5.4	12	4.7	7.8	0.0	0.0	S.
August.....	67	80	93	55	37	71	64	3.2	9	2.3	8.9	0.0	0.0	W.
Summer mean.....	67	79		55				12.9	33	11.1	19.8	0.0		S.
September.....	62	75	92	49	29	66	59	2.6	6	1.5	1.5	T.	T.	W.
October.....	51	63	85	39	17	56	44	2.4	6	1.2	5.3	0.3	2.0	S.
November.....	40	49	72	30	8	49	33	3.1	10	1.0	3.2	4.9	7.0	W.
Fall mean.....	51	62		39				8.1	22	3.7	10.0	5.2		W.
Annual mean.....	48	58	94	37	-22			44.1	117	34.2	55.4	71.2	16.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD AUGUST 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Dec. 29.		1900	Jan. 1, 29, 31; Feb. 1, 2, 18, 20, 25-27; Mar. 17.	July 16, 17; Aug. 10, 11, 25; Sept. 7, 8, 10, 11.
1895	Jan. 5, 13, 31; Feb. 3-9, 24; Dec. 14.	June 4; Sept. 19.	1901	Mar. 6; Dec. 16, 20-22.	July 1, 2, 11, 21, 22, 28, 29.
1896	Jan. 4-6; Feb. 17, 18, 20, 22; Mar. 14, 24.	Aug. 5, 6, 9; Sept. 11.	1902	Feb. 3, 5, 6, 14, 16, 19, 20.	
1897	Jan. 13, 25-29, 31.	July 3-5, 7, 10; Aug. 4; Sept. 7, 10, 11, 13, 16.	1903	Jan. 9, 12, 13, 19; Feb. 17-19, 21; Dec. 3, 27, 28.	July 9, 10; Sept. 13.
1898	Feb. 2, 3; Dec. 15.	July 2, 3; Sept. 1-4.			
1899	Jan. 1, 2, 11; Feb. 1, 9-15; Dec. 30, 31.	July 26; Aug. 20.			

MARYLAND.

Western Division: ALLEGANY COUNTY. Station: CUMBERLAND.

HOWARD SHRIVER, Observer.

[Established by the United States Signal Service in May, 1889. Latitude, 39° 39' N. Longitude, 78° 46' W. Elevation, 725 feet.]

The city of Cumberland lies in a valley almost completely surrounded by hills ranging in elevation above the city from 300 to 900 feet. The station was on a hill of moderate elevation, in the western portion of the city, across Will's Creek.

The dwelling of the observer had a free exposure, but the thermometers were attached to the south side of the house, on the second floor, in a box lacking sufficient ventilation.

The rain gage rested on the ground and had a fair exposure.

The station was closed at the death of Mr. Shriver, in February, 1901, but was reestablished as a special rainfall station, reporting precipitation only. The present observer is Mr. James Webster.

From 1859 to 1871 monthly mean temperatures were computed from a single morning observation, corrected and reduced to means from tridaily observations; from 1871 to 1889 from observations made at 7 a. m., 2 p. m., and 9 p. m., from 1889 to 1895 from the daily extremes.

Monthly and annual mean temperatures, mean of the maxima and mean of the minima, are for the period of observation 1859 to 1895; absolute maximum and minimum temperatures, 1872-1900; precipitation, 1872-1902. The remaining data are for the period January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	34	43	70	24	-10	43	26	2.3	6	2.1	3.8	2.7	12.0
January.....	31	41	74	21	-7	41	22	2.3	7	0.6	1.5	6.4	6.0
February.....	32	43	76	21	-12	40	22	2.8	7	0.7	4.2	12.6	18.0
Winter mean.....	32	42	.....	22	.....	.....	.....	7.4	19	3.4	9.5	21.7	.....
March.....	38	58	81	26	-8	45	28	3.1	7	0.5	5.2	4.2	14.0
April.....	50	64	94	36	23	58	45	2.3	6	1.2	3.6	0.5	2.0
May.....	61	77	100	45	33	67	54	3.5	10	2.8	7.1	0.0	0.0
Spring mean.....	50	66	.....	36	.....	.....	.....	8.9	23	4.5	15.9	4.7	.....
June.....	70	85	101	56	44	75	65	3.5	8	2.6	3.1	0.0	0.0
July.....	73	88	103	58	49	78	69	3.3	9	2.7	1.7	0.0	0.0
August.....	71	85	101	57	42	76	68	3.1	7	3.0	7.1	0.0	0.0
Summer mean.....	71	86	.....	57	.....	.....	.....	9.9	24	8.3	11.9	0.0	.....
September.....	64	79	97	49	33	71	59	2.7	5	2.9	6.8	0.0	0.0
October.....	52	66	87	38	24	60	46	2.4	5	4.3	6.6	0.0	0.0
November.....	41	52	81	30	8	45	35	2.4	6	1.3	1.8	1.1	4.0
Fall mean.....	52	66	.....	39	.....	.....	.....	7.5	16	8.5	15.2	1.1	.....
Annual mean.....	51	65	103	38	-12	.....	.....	33.7	82	24.7	52.5	27.5	18.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1900.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	None.....	June 11, 12, 23-25, 29, 30; July 1, 12, 13, 15-20, 27; Aug. 9; Sept. 9.	1899	Jan. 2, 3; Feb. 9-12...	May 28; June 4, 5-8, 14, 15, 20, 23, 24; July 2-4, 7, 11, 12, 16, 20-23, 27; Aug. 2, 4, 10, 12, 13, 19, 21, 22, 25.
1895	Jan. 12; Feb. 3, 5-8....	May 29-31; June 1-4, 25; July 17, 20-22; Aug. 9-11, 15, 16, 24, 26, 28; Sept. 11, 12, 18-23.	1900	None.....	June 11, 29; July 2-4, 6, 7, 14-21, 30; Aug. 5-20, 24-27, 30, 31; Sept. 1-11, 26, 27.
1896	None.....	July 27-30; Aug. 6, 9, 12.			
1897	do.....	July 1-7, 9, 10, 30; Sept. 7-11, 13, 14.			
1898	do.....	July 1-4, 7, 8, 15-20, 22-28, 29-31; Aug. 1, 3, 7, 23, 24, 30, 31; Sept. 1, 2, 4.			

MARYLAND.

Western Division: WASHINGTON COUNTY. Station: GREEN SPRING FURNACE.

EDWIN G. KINSELL, Observer.

[Established by the United States Weather Bureau and Maryland State weather service in May, 1895. Latitude, 39° 38' N. Longitude, 77° 55' W. Elevation, 450 feet.]

The station is situated in the valley of the Potomac River, at the base of North Mountain and along the line of the Western Maryland Railroad and the Chesapeake and Ohio Canal. There are high hills immediately to the north and across the Potomac on the south. There is an unobstructed view east and west.

The thermometer shelter, of the Weather Bureau pattern, has a free exposure, and is mounted about 4 feet above ground. The maximum and minimum thermometers are Weather Bureau instruments.

The rain gage rests upon the ground in an open space near the shelter. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	32	41	67	24	0	36	20	2.9	7	0.6	5.3	3.1	1.0	W.
January.....	31	39	63	22	-9	34	28	2.8	8	2.5	1.6	4.4	7.5	E.
February.....	30	39	69	21	-14	34	25	2.5	8	3.3	0.6	7.5	11.0	W.
Winter mean.....	31	40		22				9.0	23	6.4	7.5	15.0		W.
March.....	42	52	82	32	-1	49	35	3.5	10	2.4	3.7	8.5	16.0	E.
April.....	52	64	93	40	17	56	40	2.7	9	1.7	6.3	T.	T.	E.
May.....	63	76	96	51	32	65	60	3.7	10	1.6	7.6	0.0	0.0	E.
Spring mean.....	52	64		41				9.9	29	5.7	17.6	8.5		E.
June.....	71	83	98	59	40	73	67	3.5	10	4.4	3.2	0.0	0.0	W.
July.....	76	89	106	63	46	79	71	3.7	10	4.8	4.5	0.0	0.0	W.
August.....	73	86	100	62	44	78	70	3.5	8	0.9	7.4	0.0	0.0	W.
Summer mean.....	73	86		61				10.7	28	10.1	15.1	0.0		W.
September.....	67	80	98	54	32	72	64	2.5	6	5.0	2.4	0.0	0.0	E.
October.....	54	66	80	43	20	60	49	2.1	6	1.0	0.8	T.	T.	E.
November.....	44	53	79	33	13	49	38	2.7	8	2.8	3.1	1.0	3.0	W.
Fall mean.....	55	66		43				7.3	20	8.8	6.3	1.0		E.
Annual mean.....	53	64	106	42	-14			36.9	100	31.0	46.5	24.5	16.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD MAY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	Dec. 14.....	May 29-31; June 1-5, 18-20, 23-26; July 7, 17, 18, 20-22; Aug. 5, 9-13, 15, 16, 18, 23, 24, 26, 28, 29; Sept. 11, 12, 18-23.	1900	Feb. 2; Mar. 18.....	May 8, 13-16; June 11-14, 25-29; July 3-8, 11, 12, 14-21; Aug. 6-20, 24-27, 31; Sept. 1, 6, 7, 10, 11, 26, 27.
1896	Jan. 6; Mar. 14.....	Apr. 18, 19; May 9-11, 17; June 8, 20, 21; July 1, 3, 4, 12-14, 24, 27, 29, 30; Aug. 5-13, 16, 23; Sept. 3, 10-12.	1901	None.....	June 12, 13, 25-30; July 1-6, 11, 15, 17, 19, 21, 25, 28-31; Aug. 3, 10.
1897	None.....	June 15, 16, 30; July 2, 3, 6, 7, 9-11, 23, 26; Aug. 3, 4, 14, 15; Sept. 8-11, 13-16.	1902	Feb. 4.....	May 19, 20, 23; June 3, 11, 12, 14, 15; July 3-6, 8, 9, 14, 15, 17-20, 27-29; Aug. 3, 11, 31; Sept. 1.
1898	Feb. 4.....	June 12, 25-28, 30; July 1-4, 8, 15-18, 20-22, 25, 26, 28-31; Aug. 1-4, 7, 17, 20, 24, 30, 31; Sept. 1-4, 6.	1903	Feb. 18, 19.....	Apr. 29; May 18, 20, 21; June 30; July 1-4, 8-11, 24-26, 29, 30; Aug. 22-25.
1899	Jan. 2; Feb. 1, 9-11, 15.	May 29; June 5-8, 15, 20, 23, 24, 28; July 3-5, 12, 13, 16, 17, 20-23, 26, 27, 29; Aug. 2-5, 10, 11, 13, 19-21; Sept. 6, 8.			

MARYLAND.

Northern-Central Division: FREDERICK COUNTY. Station: NEWMARKET.

•HOWARD H. HOPKINS, Observer.

[Established by the Smithsonian Institution in June, 1873; closed in October, 1879; reestablished by the United States Signal Service in 1885.
Latitude, 39° 23' N. Longitude, 77° 17' W. Elevation, 550 feet.]

The station is situated in the open and comparatively flat area of the eastern part of the county, about a mile to the north of the Baltimore and Ohio Railroad.

The instrument shelter is of the Weather Bureau pattern, and is mounted about 6 feet above ground, against the north wall of a small stone spring house—a good exposure. The maximum and minimum thermometers are Weather Bureau instruments.

The rain gage is mounted about 18 inches above ground, in an open garden. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	34	41	64	26	2	41	23	2.9	8	0.5	1.9	3.2	6.0	NW.	
January.....	31	38	62	24	— 4	33	21	2.3	7	2.6	4.8	6.3	6.5	NW.	
February.....	32	40	70	23	—14	36	26	3.5	9	6.0	5.0	9.4	12.0	NW.	
Winter mean.....	32	40	.....	24	.....	.....	.....	9.2	24	9.1	11.7	18.9	.....	NW.
March.....	41	53	79	30	3	50	31	3.9	9	5.9	5.9	3.6	12.0	NW.	
April.....	51	64	93	42	21	58	45	3.3	7	1.3	4.3	0.9	8.0	NW.	
May.....	63	74	93	52	31	68	61	3.5	10	1.3	2.8	0.0	0.0	NW.	
Spring mean.....	52	64	.....	41	.....	.....	.....	10.7	26	8.5	13.0	4.5	.....	NW.
June.....	72	82	99	60	42	79	66	4.2	9	3.6	12.1	0.0	0.0	NW.	
July.....	77	87	105	67	51	80	74	4.6	10	3.9	7.7	0.0	0.0	SW.	
August.....	74	84	98	64	47	77	70	4.3	7	1.8	7.6	0.0	0.0	NW.	
Summer mean.....	74	84	.....	64	.....	.....	.....	13.1	26	9.3	27.4	0.0	.....	NW.
September.....	66	78	96	56	38	72	61	3.6	6	4.1	2.2	0.0	0.0	NW.	
October.....	55	66	87	47	25	60	47	2.9	7	0.9	3.5	T.	T.	NW.	
November.....	43	53	83	37	10	50	39	4.0	8	3.4	0.8	1.1	4.0	NW.	
Fall mean.....	55	66	.....	47	.....	.....	.....	10.5	21	8.4	6.5	1.1	.....	NW.
Annual mean.....	53	63	105	44	—14	.....	.....	43.5	97	35.3	58.6	24.5	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1896	Jan. 4-6; Feb. 17, 18, 20, 21; Mar. 13, 14; Dec. 24, 28.	Aug. 5-7, 9, 11, 12.	1900	Jan. 2, 30; Feb. 1, 2, 18-20, 25, 27; Mar. 12, 18; Dec. 15-17.	July 5-7, 15-19; Aug. 7, 10-12; Sept. 11.
1897	Jan. 25, 26, 29, 31; Feb. 1.	July 6.	1901	Jan. 20; Feb. 1, 2, 7; Mar. 6, 7; Dec. 20-22.	June 30; July 1, 2.
1898	Feb. 1-4; Dec. 14, 15.	June 25, 30; July 1-4, 16, 18, 20, 29, 30; Aug. 31; Sept. 2, 3.	1902	Feb. 4-6, 8, 16, 20.	June 13; July 17, 18.
1899	Jan. 1-3, 7, 11; Feb. 1, 2, 9-16; Dec. 30, 31.	June 6-8; July 3, 4, 22; Aug. 20, 21.	1903	Jan. 13; Feb. 18-21; Dec. 27.	Aug. 25.

MARYLAND.

Northern-Central Division: HARFORD COUNTY. Station: DARLINGTON.

Prof. A. F. GALBREATH, Observer.

[Established by the Maryland State weather service and the United States Weather Bureau in October, 1891. Latitude, 39° 36' N. Longitude, 76° 13' W. Elevation, 345 feet.]

The village of Darlington is situated on high ground in the gently undulating region just west of the Susquehanna River.

The instrument shelter, containing Weather Bureau maximum and minimum thermometers, is of the standard Weather Bureau pattern. It is mounted about 4 feet above ground, and has a free exposure.

The rain gage has a fairly free exposure, the nearest obstruction being a barn about 50 feet distant. The top of the gage is about 5 feet above ground. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	42	60	26	3	36	20	3.7	6	0.3	7.9	2.9	6.0	NW.
January.....	31	39	65	24	0	36	20	3.0	6	1.3	3.4	4.9	10.0	NW.
February.....	30	38	66	21	12	34	24	3.8	6	5.1	5.4	9.1	15.0	NW.
Winter mean.....	32	40		24				10.5	18	6.7	16.7	16.9		NW.
March.....	42	52	78	33	6	50	35	3.4	7	4.9	3.8	3.1	7.0	NW.
April.....	51	62	94	41	20	57	40	3.4	7	1.4	4.4	2.4	16.0	NW.
May.....	62	73	97	52	32	67	50	3.8	9	2.5	1.9	0.0	0.0	SW.
Spring mean.....	52	62		42				10.6	23	8.8	10.1	5.5		SW.
June.....	70	80	100	60	42	73	66	3.3	7	3.4	4.2	0.0	0.0	SW.
July.....	75	85	104	66	49	78	70	4.5	8	3.0	7.3	0.0	0.0	SW.
August.....	73	82	103	63	41	78	68	4.2	8	1.3	1.4	0.0	0.0	SW.
Summer mean.....	73	82		63				12.0	23	7.7	12.9	0.0		SW.
September.....	67	76	94	57	38	71	64	4.2	6	4.9	9.5	0.0	0.0	SW.
October.....	55	64	85	46	26	62	49	3.5	6	3.6	6.6	T.	T.	NW.
November.....	44	53	76	36	13	50	39	3.0	6	4.5	2.2	1.5	6.0	NW.
Fall mean.....	55	64		46				10.7	18	13.0	18.3	1.5		NW.
Annual mean.....	53	62	104	44	-12			43.8	82	36.2	58.0	23.9	16.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 28, 29.....	July 17, 28, 29; Aug. 3.	1900	Jan. 2, 30, 31; Feb. 1,	July 4-8, 15-21; Aug. 6-17, 26, 27, 31.
1895	Jan. 5, 13; Feb. 1, 3-9.	June 1-3.		2, 19, 25, 27; Mar. 18.	
1896	Jan. 4-6; Feb. 17-22;	Aug. 7, 9.	1901	Jan. 4, 6, 19, 20; Feb.	June 12, 25, 27-30; July 1-5, 17, 20, 23, 24,
	Mar. 13, 14; Dec. 24,			1, 2, 7, 9, 23; Mar. 6,	29, 30.
	25, 28.			7; Dec. 22.	
1897	Jan. 25, 26, 29.....	None.	1902	Jan. 5; Feb. 4-6, 8;	June 3.
1898	Feb. 2-4; Dec. 14.....	July 1, 3, 4.		Dec. 26, 28.	
1899	Jan. 1, 2, 11; Feb. 1, 2,	June 6.	1903	Jan. 13; Feb. 18-21;	May 20; July 10; Aug. 25.
	8-16; Dec. 30, 31.			Dec. 19.	

MARYLAND.

North Central Division: BALTIMORE COUNTY. Station: BALTIMORE.

O. L. FASSIG, Section Director.

[Established by Signal Service January 1, 1871. Latitude, 39° 18' N. Longitude, 76° 37' W. Elevation, 104 feet.]

This station is (1904) near the center of the city, in one of the buildings of the Johns Hopkins University. The open country to the west and north of the city is gently undulatory, forming the eastern edge of the Piedmont Plateau; to the east is the low, flat country of the Coastal Plain.

The thermometers are mounted in a standard Weather Bureau shelter, the floor of which is 9 feet above the roof of the station building.

The following shows the height of the instruments in their present location: Thermometers, 10 feet above roof, 69 feet above ground; top of rain gage, 14 feet above roof, 73 feet above ground; anemometer cups, 58 feet above roof, 117 feet above ground; wind vane, 56 feet above roof, 115 feet above ground.

Location of stations: January 1, 1871, southwest corner of South and Water streets; January, 1, 1889, Neal Building, southwest corner of Baltimore and Holliday streets; June 1, 1891, Johns Hopkins University (physical laboratory); September 7, 1895, Equitable Building, southwest corner of Calvert and Fayette streets; August 1, 1896, Johns Hopkins University (532 North Howard street).

The mean temperatures are derived from the regular series of observations of the Weather Bureau, to which corrections have been applied to reduce to true daily mean based on twenty-four hourly observations.

Tabulated data are for the following periods of observation: Snowfall, 1883-1903; humidity, 1889-1903; sunshine, July, 1893, to December, 1903; wind direction, 1893-1903. Remainder of data is from the entire period of observation, thirty-three years—January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
December	37	44	73	31	-3	45	29	3.1	11	2.1	0.6	3.3	10.6	74	1.75	68	1.87	159	50	W.	
January	34	41	73	27	-6	44	24	3.2	12	2.1	4.2	5.6	7.0	75	1.52	69	1.57	162	50	W.	
February	35	43	78	28	-7	43	26	3.7	11	4.6	2.5	7.5	15.5	73	1.48	67	1.53	179	59	W.	
Winter mean	35	43	78	29	-6	44	26	10.0	34	8.8	7.3	16.4	.....	74	1.58	68	1.66	167	53	W.
March	42	49	82	34	5	50	35	4.0	13	3.2	5.7	5.8	12.0	71	1.38	65	2.06	211	57	NW.	
April	53	61	94	44	24	59	47	3.3	11	2.1	8.7	0.8	8.0	65	2.56	60	2.91	237	60	SE.	
May	64	73	96	55	34	71	60	3.6	12	1.0	6.8	T.	T.	68	4.04	65	4.41	239	54	SE.	
Spring mean	53	61	94	44	24	59	47	10.9	36	6.3	21.2	6.6	.....	68	2.83	63	3.13	229	57	SE.
June	73	82	99	64	47	76	68	3.8	10	4.3	6.2	0.0	0.0	70	5.77	68	6.16	276	62	SW.	
July	78	86	104	69	55	82	72	4.7	12	1.5	11.0	0.0	0.0	72	6.74	68	6.99	282	62	SW.	
August	76	84	100	67	51	80	73	4.2	11	2.9	1.4	0.0	0.0	73	6.41	69	6.66	267	63	SW.	
Summer mean	76	84	100	67	51	80	73	12.7	33	8.7	18.6	0.0	.....	72	6.31	68	6.60	275	62	SW.
September	68	77	101	61	39	77	64	3.8	9	4.3	4.6	0.0	0.0	76	5.15	73	5.64	243	65	SE.	
October	58	66	90	49	30	64	53	3.0	9	1.7	4.1	T.	T.	74	3.47	69	3.58	211	60	SE.	
November	45	53	79	39	15	52	42	3.0	10	1.8	6.4	0.8	4.5	75	2.38	69	2.53	165	51	W.	
Fall mean	57	65	90	44	24	64	53	9.8	28	7.8	15.1	0.8	.....	75	2.67	70	3.92	206	59	SE.
Annual mean	55	63	104	47	-7	64	53	43.4	131	31.6	62.2	23.8	15.5	72	3.60	68	3.83	219	58	SE.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Feb. 25; Dec. 29.....	June 23, 24; July 12, 13, 20, 28, 29.	1899	Jan. 1, 2, 11; Feb. 1, 8-15; Dec. 30, 31.	June 6-8; July 22; Aug. 20, 27.
1895	Jan. 13; Feb. 3, 5-9....	May 30, 31; June 1-3; July 21; Aug. 10, 11, Sept. 21-23.	1900	Jan. 31; Feb. 1, 2, 24, 25, 27.	July 4, 6, 7, 15-18, 21; Aug. 6-12; Sept. 11.
1896	Jan. 5, 6; Feb. 17, 18, 20.	May 10; July 27; Aug. 5, 7, 9, 11, 12.	1901	.....	June 29, 30; July 1-4, 6, 29, 30.
1897	Jan. 25, 26.....	June 30; Sept. 11.	1902	.....	July 3, 5, 6, 17, 18, 20.
1898	Feb. 2.....	June 25, 26; July 1-4; Aug. 31; Sept. 1-3.	1903	Feb. 18, 19.....	July 2, 3, 9-11, 30; Aug. 25.

MARYLAND.

Eastern Division: KENT COUNTY. Station: CHESTERTOWN.

MARION DE KALB SMITH, Observer.

[Established by the Maryland State weather service and the United States Weather Bureau in November, 1863. Latitude, 39° 13' N. Longitude, 76° 5' W. Elevation, 80 feet.]

Chestertown is situated along the right bank of the Chester River, a tide-water stream of the eastern shore of Maryland. The station is on the most elevated ground in the vicinity.

The maximum and minimum thermometers are Weather Bureau instruments, and are mounted upon a partially protected support attached to the outside of a window on the north side of the observer's dwelling. The height of the thermometers above ground is 6 feet.

The rain gage rests upon the ground in an open garden and has a fine exposure.

Monthly mean temperatures were computed from the daily extremes. The record of the total amount of precipitation for the driest and wettest years is for the years 1861, 1862, 1896, 1899, 1902, and 1903. The remaining data are for the period of observation—November 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	42	74	28	9	39	32	3.2	7	0.9	6.8	2.7	3.0	NW.
January.....	32	39	63	25	5	37	30	3.1	7	2.2	3.9	5.1	7.5	NW.
February.....	32	39	67	24	-9	36	24	3.2	8	6.1	5.8	7.3	9.0	NW.
Winter mean.....	33	40		26				9.5	22	9.2	16.5	15.1		NW.
March.....	43	53	79	36	14	49	37	3.6	9	4.9	3.5	0.6	3.0	NW.
April.....	51	61	87	42	25	52	40	3.6	9	1.1	3.9	0.2	2.0	S.
May.....	63	72	92	53	32	67	60	4.0	9	4.0	2.2	0.0	0.0	SW.
Spring mean.....	52	62		44				11.2	27	10.0	9.6	0.8		SW.
June.....	71	80	94	61	43	74	67	3.9	8	3.7	5.5	0.0	0.0	SW.
July.....	76	85	100	68	54	79	72	3.9	10	4.9	4.1	0.0	0.0	SW.
August.....	74	82	93	66	53	76	72	5.0	9	2.1	1.5	0.0	0.0	SW.
Summer mean.....	74	82		65				12.8	27	10.7	11.1	0.0		SW.
September.....	68	76	90	58	41	72	66	4.0	7	5.4	6.8	0.0	0.0	SW.
October.....	56	65	83	48	30	61	51	3.1	7	2.9	6.3	T.	T.	SW.
November.....	46	53	75	37	17	51	40	2.9	7	1.8	3.9	0.9	6.0	NW.
Fall mean.....	57	65		48				10.0	21	10.1	17.0	0.9		SW.
Annual mean.....	54	62	100	46	-9			43.5	97	40.0	54.2	16.8	9.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Feb. 25; Dec. 29.....	None.	1899	Jan. 2; Feb. 1, 2, 9-16; Dec. 29, 31.	None.
1895	Feb. 3, 5-9, 11, 12, 15.	Do.	1900	None.....	July 18.
1896	Jan. 5, 6; Feb. 17, 18, 20; Dec. 24, 28.	Do.	1901	Jan. 3.....	July 1, 2.
1897	Jan. 25-28.....	Do.	1902	Feb. 5.....	July 18.
1898	Feb. 2, 4.....	July 1-4.	1903	Feb. 18, 19.....	None.

MARYLAND.

Eastern Division: TALBOT COUNTY. Station: EASTON.

HENRY SHREEVE, Observer.

[Established by the Maryland State weather service in 1891. Latitude, 38° 46' N. Longitude, 76° 5' W. Elevation, 35 feet.]

The town of Easton is at the head of Tred Avon River, a tide-water branch of Chesapeake Bay. The country about is flat and low, nowhere having an elevation above about 40 feet.

The thermometer shelter is of the Weather Bureau pattern, mounted at a distance of about 4 feet above ground with a good exposure, and contains Weather Bureau maximum and minimum thermometers.

The rain gage rests upon the ground and has a free exposure.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY, 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	37	45	70	28	8	43	30	2.9	7	1.0	4.6	2.4	7.2	NW.
January.....	33	41	65	26	1	39	24	3.0	8	1.2	4.1	4.2	6.5	NW.
February.....	34	42	69	25	15	38	27	4.2	7	6.0	4.9	7.9	10.0	NW.
Winter mean.....	35	43		26				10.1	22	8.2	13.6	14.5		NW.
March.....	43	54	82	35	11	51	39	3.5	10	4.3	3.6	1.8	10.0	NW.
April.....	53	64	93	43	26	56	49	3.2	8	1.7	3.6	0.1	1.0	NW.
May.....	64	74	93	53	34	68	61	3.4	10	3.6	1.6	0.0	0.0	SW.
Spring mean.....	53	64		44				10.1	28	9.6	8.8	1.9		NW.
June.....	72	81	96	61	40	76	68	3.6	8	3.8	7.4	0.0	0.0	SW.
July.....	76	86	101	68	52	80	72	4.3	9	2.3	3.7	0.0	0.0	SW.
August.....	75	85	101	66	51	80	72	3.7	7	1.5	2.4	0.0	0.0	W.
Summer mean.....	74	84		65				11.6	24	7.6	13.5	0.0		SW.
September.....	69	80	96	59	38	73	66	2.9	6	2.7	4.9	0.0	0.0	SW.
October.....	58	68	88	48	28	62	52	3.4	7	1.0	6.7	0.0	0.0	NW.
November.....	46	55	78	34	15	52	42	2.6	7	1.9	3.1	0.1	0.8	NW.
Fall mean.....	58	68		47				8.9	20	5.6	14.7	0.1		SW.
Annual mean.....	55	65	101	46	15			40.7	94	31.0	50.6	16.5	10.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	None.....	June 24; July 13.	1899	Jan. 2, 3; Feb. 1-3, 9-16; Dec. 29.	June 8; Aug. 21.
1895	Feb. 3, 5-9.....	Aug. 11.			
1896	Jan. 5, 6; Feb. 17.....	Aug. 5-9, 11-13.	1900	Feb. 1, 2, 27, 28.....	July 4, 6-8, 16-18; Aug. 7-12, 14, 18, 27.
1897	Jan. 26, 31.....	None.	1901	Dec. 22.....	July 1, 2, 5, 6.
1898	Feb. 2.....	June 25, 26; July 1-4, 19, 30; Aug. 8; Sept. 1-3.	1902	Feb. 5, 6.....	July 18.
			1903	Feb. 19, 20.....	July 2, 3, 10; Aug. 15.

MARYLAND.

Southern Division: CALVERT COUNTY. Station: SOLOMONS.

WILLIAM HENRY MARSH, Observer.

[Established by the Maryland State weather service and the United States Weather Bureau in 1892. Latitude, 36° 19' N. Longitude, 76° 27' W. Elevation, 20 feet.]

The station is on Solomons Island in the Patuxent River, at the southern extremity of Calvert County. The greatest elevation on the island is not over 20 feet above mean tide.

The thermometer shelter is of the Weather Bureau pattern, mounted about 4 feet above ground in an open garden, and contains Weather Bureau maximum and minimum thermometers.

The rain gage has a free exposure; the top of the gage is about 3 feet above ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days, with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	39	46	65	32	10	41	34	2.7	8	3.2	3.5	2.4	7.5	NW.
January.....	35	42	67	28	4	41	26	2.9	9	2.4	2.9	5.3	7.0	NW.
February.....	35	42	69	27	— 5	39	27	3.8	10	3.9	4.6	6.7	9.0	NW.
Winter mean.....	36	43		29				9.4	27	9.5	11.0	14.4		NW.
March.....	44	53	82	37	15	50	38	3.4	9	1.2	2.7	1.9	6.0	NW.
April.....	53	62	88	45	28	56	51	3.3	9	3.1	3.2	0.2	2.0	SE.
May.....	65	74	100	56	41	70	62	3.3	11	4.6	2.8	0.0	0.0	SE.
Spring mean.....	54	63		46				10.0	29	8.9	8.7	2.1		SE.
June.....	74	82	99	65	52	76	72	3.3	9	0.9	4.0	0.0	0.0	SE.
July.....	79	87	100	70	57	81	76	4.6	11	2.3	6.4	0.0	0.0	SW.
August.....	78	86	103	70	58	83	75	3.7	10	1.9	2.1	0.0	0.0	SE.
Summer mean.....	77	85		68				11.6	30	5.1	12.5	0.0		SE.
September.....	72	81	98	64	46	77	69	2.6	7	1.9	4.9	0.0	0.0	SE.
October.....	60	69	89	52	35	65	56	3.3	7	4.3	5.0	0.0	0.0	NW.
November.....	49	57	77	41	20	54	44	2.5	8	2.4	2.3	0.4	2.0	NW.
Fall mean.....	60	69		52				8.4	22	8.6	12.2	0.4		NW.
Annual mean.....	57	65	103	49	— 5			39.4	108	32.1	44.4	16.9	9.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	None.....	July 12-14, 23, 29; Aug. 9; Sept. 9, 10...	1899	Feb. 9-15; Dec. 31....	June 6, 8; Sept. 6, 8.
1895	Feb. 6-9.....	May, 9, 10, 31; Aug. 10, 11, 24, 29; Sept. 12, 19, 21-23.	1900	Feb. 1, 2.....	May 15; July 4-8, 15-18, 21; Aug. 6-14, 17, 26, 27; Sept. 11.
1896	None.....	Aug. 5, 7, 9-13.	1901	None.....	July 1-3, 6, 6, 25, 29, 30.
1897	Jan. 26.....	None.	1902	do.....	July 5, 18, 20.
1898	None.....	June 12, 25, 26; July 1-4.	1903	Feb. 19.....	July 9; Aug. 25.

MARYLAND.

Eastern Division: SOMERSET COUNTY. Station: PRINCESS ANNE.

JAMES R. STEWART, Observer.

[Established by the United States Signal Service in 1888 and closed in 1889; reestablished by United States Weather Bureau in 1894; latitude, 38° 13' N. Longitude, 75° 42' W.; Elevation, 20 feet.]

The town of Princess Anne is situated at the head of Manokin River, a tide-water branch of the Chesapeake Bay. Elevations do not exceed 20 feet above mean tide anywhere within the vicinity. The station is on the edge of the town.

The thermometer shelter is of the Weather Bureau pattern, and is mounted about 4 feet above the ground and has a fine exposure. The shelter contains Weather Bureau maximum and minimum thermometers. The rain gage rests upon the ground near by.

From 1822 to 1850 monthly mean temperatures were computed from observations made at 7 a. m. and 1 p. m.; from 1894 to 1903 from the daily extremes.

Monthly and annual mean temperatures are for the periods of observation 1822 to 1850, and 1894 to 1903; the remaining data are for the period January 1, 1894, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	40	47	68	27	- 3	40	33	2.7	9	2.0	3.0	1.4	1.4	NW.
January.....	37	44	68	25	- 1	38	32	2.6	10	3.4	3.8	4.0	6.0	NW.
February.....	38	45	69	24	-10	39	25	4.0	9	2.1	5.4	6.9	16.0	NW.
Winter mean.....	38	45		25				9.3	28	7.5	12.2	12.3		NW.
March.....	47	55	76	35	10	51	40	3.9	10	4.3	7.4	1.6	3.2	NW.
April.....	55	63	93	41	22	55	50	3.2	9	5.6	3.5	T.	T.	SW.
May.....	64	74	93	52	31	66	61	2.7	10	3.9	1.2	0.0	0.0	SW.
Spring mean.....	55	64		43				9.8	29	13.8	12.1	1.6		SW.
June.....	72	80	96	61	40	75	66	3.1	11	1.1	3.1	0.0	0.0	SW.
July.....	77	85	99	68	50	79	74	4.6	11	4.2	5.2	0.0	0.0	SW.
August.....	76	83	98	66	46	78	72	4.7	9	2.5	6.3	0.0	0.0	SW.
Summer mean.....	75	83		65				12.4	29	7.8	14.6	0.0		SW.
September.....	69	79	96	58	26	72	65	3.0	7	0.9	3.2	0.0	0.0	SW.
October.....	57	68	87	46	23	62	51	3.8	8	2.7	7.7	T.	T.	NW.
November.....	48	58	78	36	17	52	41	2.6	8	2.1	2.2	0.6	4.0	NW.
Fall mean.....	58	68		47				9.4	23	5.7	13.1	0.6		NW.
Annual mean.....	57	65	99	45	-10			40.9	109	35.0	52.2	14.5	16.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Feb. 3, 6, 8, 9, 12.....	June 1, 3; Aug. 11; Sept. 21-23.	1900	Jan. 3, 4; Feb. 1, 2, 20, 27.	July 4-8, 17, 18; Aug. 7, 10-12.
1896	Jan. 5, 6; Feb. 17, 21, 22; Dec. 4.	Aug. 10-13.	1901	Jan. 20; Feb. 24, 25; Mar. 6; Dec. 22.	July 1, 2, 29, 30.
1897	Jan. 26, 27, 30, 31.....	None.	1902	Feb. 5, 6, 20.....	July 18, 20.
1898		July 2.	1903	Feb. 19, 20.....	None.
1899	Jan. 2, 11, 29; Feb. 1, 2, 9-16; Dec. 29-31.	June 8.			

DISTRICT OF COLUMBIA.

Station: WASHINGTON.

Weather Bureau Central Office: Prof. WILLIS L. MOORE, Chief of Bureau.

[Established by the Signal Service November 1, 1870. Latitude, 38° 54' N. Longitude, 77° 3' W. Elevation, 73 feet.]

The city of Washington is situated on the Potomac at the head of tide water. The Weather Bureau station on its establishment in 1870 was located at 1719 G street NW., where it remained until August, 1888. On August 15, 1888, the office was moved diagonally across the street to 1744 G street NW. The station remained in this location only a few months when on March 29, 1889, it was moved to the Ferguson Building, southwest corner of Twenty-fourth and M streets NW., its present location.

The thermometers are exposed in a standard shelter on the roof of the office building at an elevation of 50 feet above ground. The station rain gage is a weighing gage, its top being 42 feet above the ground. The anemometer and wind vane are on a steel support, the anemometer cups being 76 feet above the ground.

Tabulated data are from the following periods of observation: Mean maxima and mean minima, thirty-two years humidity, fifteen years; sunshine, fourteen years. Remainder of data for whole period, thirty-three years, November, 1870, to December, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	36	44	73	29	-13	46	26	3.1	10	4.2	0.2	2.8	10.0	76	1.66	67	1.77	158	54	NW.
January.....	33	41	76	26	-14	44	25	3.4	12	2.1	4.0	5.9	5.6	77	1.49	69	1.63	145	48	NW.
February.....	35	44	78	27	-15	43	26	3.6	10	4.6	2.5	8.1	12.0	75	1.52	66	1.62	151	50	NW.
Winter mean.....	35	43	75	27	-14	44	26	10.1	32	10.9	6.7	16.8	10.0	76	1.56	67	1.67	151	51	NW.
March.....	42	51	83	33	4	50	34	4.1	12	1.0	4.2	4.6	10.0	75	1.98	65	2.14	179	48	NW.
April.....	53	63	93	43	22	58	48	3.2	11	3.3	9.1	0.4	4.0	70	2.76	59	2.96	211	53	NW.
May.....	64	74	96	54	34	70	59	3.8	12	4.0	10.7	0.0	0.0	75	4.31	68	4.61	244	55	S.
Spring mean.....	53	63	93	43	22	58	48	11.1	35	8.3	24.0	5.0	0.0	73	3.02	64	3.24	211	52	NW.
June.....	73	83	102	63	43	78	67	4.0	10	1.2	5.0	0.0	0.0	76	5.87	71	6.24	279	63	S.
July.....	77	87	103	68	52	81	72	4.5	11	2.1	8.1	0.0	0.0	77	6.76	72	6.95	291	64	S.
August.....	75	84	101	66	49	80	72	4.0	11	2.0	3.1	0.0	0.0	80	6.81	74	6.92	276	65	S.
Summer mean.....	75	85	102	66	40	80	72	12.5	32	5.3	16.2	0.0	0.0	78	6.48	72	6.70	282	64	S.
September.....	68	78	104	59	38	77	62	3.5	8	1.5	3.9	0.0	0.0	81	5.31	76	5.68	252	68	S.
October.....	57	66	92	47	26	63	51	3.1	9	3.1	4.5	T.	T.	80	3.50	72	3.61	208	60	NW.
November.....	45	54	80	37	12	51	40	2.8	10	1.5	6.0	0.7	2.5	79	2.33	69	2.44	154	51	NW.
Fall mean.....	57	66	92	48	12	51	40	9.4	27	6.1	14.4	0.7	0.0	80	3.71	72	3.91	205	60	NW.
Annual mean.....	55	64	104	46	-15	61	43	43.1	126	30.6	61.3	22.5	12.0	77	3.69	69	3.88	212	57	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 29.....	June 23, 24; July 12, 13, 20, 27-29; Sept. 10.	1900	Jan. 4, 30, 31; Feb. 1, 2, 25, 27; Mar. 8, 25, 26, 29, 30.	July 4-6, 16-18; Aug. 6-12, 26; Sept. 6, 11.
1895	Jan. 13; Feb. 3, 5-9....	May 30; June 1-3; Aug. 9-11, 29; Sept. 12, 19, 21-23.			
1896	Jan. 5, 6; Feb. 17, 18, 20, 21.	Aug. 5-7, 9, 12, 13.	1901	Dec. 21, 22.....	June 30; July 1-3, 5, 6, 29, 30.
1897	Jan. 25, 26, 28, 30, 31..	Sept. 10, 11.	1902	Feb. 5, 6.....	July 3, 5, 6, 17, 18.
1898	Feb. 2-4.....	June 25, 26; July 1-4, 16; Sept. 3.	1903	Feb. 17-20.....	July 2, 3, 10, 11; Aug. 25.
1899	Jan. 1, 2; Feb. 1, 2, 8-16; Dec. 29-31.	June 6-8; Aug. 20.			

VIRGINIA.

By EDWARD A. EVANS,
Section Director.

VIRGINIA.

Virginia lies between the parallels of 36° 30' and 39° 30' north latitude and the meridians of 75° 15' and 83° 40' west longitude. In its physical features it presents strong contrasts, the land rising from the coast line westward in a succession of terraces to the Blue Ridge Mountains, then falling into the Great (or Shenandoah) Valley and again rising into the Appalachian range of mountains.

Its land area is 40,125 square miles; water area, 2,325 square miles. Six principal rivers, with their tributaries, drain the State, five of which, viz, the Potomac, Rappahannock, York, James, and Roanoke-Staunton, flow generally southeasterly to Chesapeake Bay or the sea. The sixth, New River, rises in the mountainous portions of Carroll, Grayson, and Wythe counties and, flowing generally northward, breaks through the Alleghany Mountains in Giles County and joins the Kanawha River.

The natural divisions of the State are six in number, each differing in geology and elevation. The climatic divisions are three in number and each is distinguished by differences in temperature, precipitation, and winds, due to situation and elevation.

The climatic divisions are Tidewater Virginia, Middle Virginia, and the Great Valley, and all description and areas given in this paper are referred to them.

Tidewater Virginia.—Tidewater Virginia is generally low lying and quite level, except in its northern portions. It rises on a gently ascending slope from the coast line westward to middle Virginia. In that part south of the James River the country is open and has large areas of what are commonly known as "savanna" lands, while north of it the surface becomes moderately rolling, rising to heights of 150 feet or more. The coast line is indented with numerous bays and coves and the estuaries of various large rivers. This section is nearly quadrilateral in form and has a land area of 11,000 square miles.

Middle Virginia.—Middle Virginia embraces somewhat less than half the total area of the State, the figures being 19,150 square miles. It extends in a generally southerly and southwesterly direction from the Potomac River to the North Carolina line and is separated from the Great Valley division by the Blue Ridge. Its outline is, roughly, that of a right-angled triangle, the base of which forms the southern boundary of the State. In elevation the surface varies from the lowlands of the southeastern counties and the swelling uplands of the northern portion to the sharply rolling lands of the more westerly counties and the foothills and mountain spurs of the Blue Ridge. North of the James River the rolling character of the country is more decided than to the southward of that stream, except in the Piedmont districts, where the physical conditions are generally similar. The elevations vary from less than 100 feet in the southeast portion to upward of 1,100 feet in the Piedmont portions. Several large rivers cross this section, flowing generally to the southeast; their affluents mostly come in from the north or northeast and from the southwest. This arrangement of drainage areas gives rise to a series of large and small valleys, the former trending to the southeast and the latter lying at various angles to them.

The Great Valley.—This is the most westerly as well as the most elevated of the three climatic divisions of the State. It contains an approximate area of 10,000 square miles, and its general trend is northeast and southwest. The surface falls steeply from the crests of the Alleghanies and the Blue Ridge into the main valley below. In general, the floor of the valley is highest on its western side. A cross section of the valley would give a U-shaped figure. Embraced in this section are four complete watersheds, viz, those of the Shenandoah (Potomac), the James, the Roanoke, and the New rivers, and part of a fifth, the Holston River; hence a profile of the region discloses a series of ascending and descending planes, above which tower the summits of parallel ranges of mountains, separated by narrow valleys—some straight, others winding and irregular—together with oval depressions locally known as "pockets" or "gardens," the least elevation of some of which is upward of 3,000 feet above the sea. The height of the floor of these watersheds above sea level increases to the southwestward from 242 feet at Harpers Ferry, on the northwest edge of the State, to 1,687 feet on the southwest edge. The greatest and least elevations (Hotchkiss) for each of the watersheds are as follows:

Watershed.	Elevation above mean sea level.		Watershed.	Elevation above mean sea level.	
	Least.	Greatest.		Least.	Greatest.
	<i>Feet.</i>	<i>Feet.</i>		<i>Feet.</i>	<i>Feet.</i>
Shenandoah.....	242	1,863	New-Kanawha.....	1,780	2,594
James.....	706	1,863	Holston.....	1,687	2,594
Roanoke-Staunton.....	825	2,049			

The State, occupying a position nearly midway between the boundary lines of the North Temperate Zone, has, as would naturally be expected, a climate free from extremes of heat and cold and from decidedly abnormal conditions of precipitation.

The sharp contrasts in physical configuration, together with the modifying influence of the Atlantic Ocean, however, cause different climatic conditions to obtain within its limits; thus over the low, flat lands of the Tidewater division moderate daily range and variability of temperature; seasonal temperatures devoid for the most part of rapid and marked fluctuations, a humid atmosphere and frequent, ample, and well-distributed precipitation obtains. Briefly, the climate is nearly marine, while in its mountainous portions the effect of elevation and increased insolation is shown in the greater range of daily and seasonal temperatures. The precipitation, too, is not as well distributed and there is a greater variation in the amounts occurring. Frosts come much earlier in the autumn and are correspondingly later in the spring.

Temperature.—Considering temperature as the most important element of climate, let us see what the comparison is for the three climatic divisions into which Virginia has been divided.

In the Tidewater division, where the land is low and generally level, the temperature from day to day is quite stable. Sudden and decided changes to warmer or colder are not often experienced, and both daily range and variability of temperature operate within moderate limits. The influence of the winds daily blowing inland from the sea and moving freely over the surface, together with the equalizing effect of the water of the numerous large rivers and bays that penetrate this region, are the factors producing this result. The mean temperature seasonally and annually for this section, compiled from records of from eleven to thirty-three years, is as follows: Winter, 39.8°; spring, 56.8°; summer, 77.2°; autumn, 60.8°; annual, 58.6°. Average number of days each year with maximum temperatures above 90°, 28; with minimum temperatures below 32°, 55. The earliest known date of killing frost is October 15; the latest, April 26.

Throughout Middle Virginia the rolling contours of the land, together with its greater elevation and distance from the sea, cause greater ranges in the monthly and seasonal mean temperatures as well as the daily range and variability of temperature. Sharp and sudden temperature changes, though not frequent, occur more commonly than in the Tidewater division, and most often in the autumn and winter. Indeed, this feature is one of the principal climatic differences existing between the two sections. Local surroundings also assume a more important control over the temperatures prevailing; thus in the Tidewater division no special differences obtain in the mean temperature of any locality for the same month or season, while in Middle Virginia, especially the Piedmont portion, such differences do obtain, both as compared with the more open districts and in various parts of the Piedmont district itself. The increase observed in the daily range of temperature seems to be due to a convectional circulation of the air caused mainly by the physical conditions of the region. It is greatest in the Piedmont district.

The mean temperature seasonally and annually, compiled from the records of eleven to nineteen years, is as follows: Winter, 35.8°; spring, 55.3°; summer, 75°; autumn, 57.4°; annual, 55.9°. Average number of days each year with maximum temperatures above 90°, 25; average number of days each year with minimum temperatures below 32°, 72. Earliest known date of killing frost, October 2; latest known date of killing frost, May 29.

In the Great Valley division a vertical circulation of the air seems to be actively carried on. A relatively clear atmosphere favors insolation and strong air currents move up the mountain sides. During the day the valleys become filled with heated air, while at night cool, descending currents flow down the mountains into the valleys, displacing the warm air and thus reducing the temperature decidedly. Hence in this region are to be found the greatest differences in mean daily and monthly temperatures and in variability and range of temperature occurring in the State.

The mean temperature for this division seasonally and annually, compiled from records of eleven to twenty-four years, is as follows: Winter, 33.8°; spring, 52.7°; summer, 71.3°; autumn, 55.1°; annual, 53.2°. Average number of days each year with maximum temperatures above 90°, 13; with minimum temperatures below 32°, 98. Earliest known date of killing frost, September 12; latest known date of killing frost, May 30.

Lines of equal mean monthly temperature for Virginia for any month will show, in the Tidewater division, curves generally corresponding to the coast line and bending somewhat into the lower valleys of the large river systems; thence, passing into Middle Virginia, they for the most part follow the trend of the Blue Ridge, while in the Great Valley they parallel the mountain ranges. A permanent area of relatively low mean temperature occupies the region lying along the Alleghanies between Tazewell and Highland counties, inclusive.

The highest temperatures of the year occur in the middle Virginia division and the lowest in the Great Valley.

To facilitate detailed comparison and reference, the important climatological data for temperature for the three divisions of the State are given in tabular form below.

MONTHLY AND ANNUAL MEAN TEMPERATURES.

Division.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
Tidewater Virginia.....	39.2	39.4	46.9	55.9	66.9	74.8	79.1	77.6	71.3	62.1	48.8	41.1	58.6
Middle Virginia.....	35.2	35.2	46.0	54.6	65.1	72.5	77.0	75.4	69.0	57.3	45.8	37.3	55.9
The Great Valley.....	32.3	33.8	43.8	51.8	62.4	69.2	73.0	71.8	65.8	55.4	44.0	35.2	53.2
State.....	35.6	36.1	45.8	51.1	64.8	72.2	76.4	74.9	68.7	58.3	46.2	37.9	55.9

CLIMATOLOGY OF THE UNITED STATES.

MEAN MAXIMUM AND MINIMUM TEMPERATURES.

Division.	Jan.		Feb.		Mar.		Apr.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
Tidewater Virginia.....	47.2	31.0	47.8	30.4	53.2	34.4	65.0	46.0	76.0	56.8	83.8	65.2	88.3	70.1	86.1	69.3	80.1	63.2	69.7	52.0	58.8	41.6	50.2	33.0
Middle Virginia.....	43.4	25.8	44.4	25.7	56.2	35.8	65.0	43.5	76.5	53.7	83.2	61.9	87.6	66.4	85.5	65.8	79.9	58.2	67.8	46.8	56.0	35.9	46.7	27.9
The Great Valley.....	42.2	22.2	42.6	22.3	55.0	32.6	63.8	39.1	75.4	48.2	80.2	55.7	84.8	60.8	85.4	59.9	78.1	53.0	67.2	41.8	56.3	32.0	48.4	24.8
State.....	44.3	26.3	44.9	26.2	56.5	34.3	64.8	42.9	76.0	52.9	82.4	60.9	86.9	65.8	85.0	65.0	79.4	58.1	68.2	46.9	57.0	36.5	48.4	28.6

ABSOLUTE EXTREMES OF TEMPERATURE (HIGHEST AND LOWEST RECORDED).

Divisions.	Jan.		Feb.		Mar.		Apr.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.
Tidewater Virginia.....	80	-15	81	-6	88	10	94	24	98	35	102	42	102	50	102	41	101	37	90	26	80	16	75	0
Middle Virginia.....	77	-6	76	-21	86	10	95	19	97	31	101	36	103	49	101	40	100	33	92	21	81	12	73	-5
The Great Valley.....	75	-26	75	-22	84	-2	93	12	97	18	98	31	104	35	102	41	100	22	92	13	80	11	73	-17

AVERAGE DATE OF KILLING FROSTS AND EARLIEST AND LATEST KILLING FROSTS RECORDED.

Division.	Spring.		Autumn.	
	Average date last.	Latest recorded.	Average date first.	Earliest recorded.
Tidewater Virginia.....	Apr. 2	Apr. 26	Nov. 20	Sept. 28
Middle Virginia.....	Apr. 11	May 29	Oct. 21	Oct. 2
The Great Valley.....	Apr. 28	May 30	Oct. 10	Sept. 12

Precipitation.—Considering the stations included in this report as fairly representative of the conditions prevailing in their respective districts, and comparing the records obtained therefrom, it appears that the climate of the Tidewater division is the wettest of the State, the average annual precipitation being 46.61 inches. In the Great Valley it is 43 inches and in middle Virginia 42.50 inches. More detailed comparison shows other special climatic differences; thus, in Tidewater and Middle Virginia, the season of least precipitation is winter, the average being about $3\frac{1}{4}$ inches monthly, while in the Great Valley it is autumn, with an average of about 2 $\frac{1}{4}$ inches. On the other hand, in the mountain districts excessive local amounts of precipitation are occasionally had as a result of severe local storms, thus increasing the monthly totals abnormally at times. In the Tidewater division, though heavy and sometimes excessive rains occur, they do not nearly equal those of the mountain districts in quantity or rate of fall. Also, periods of dry weather are more frequent in the great valley and middle divisions than in the tidewater division and the number of days with measurable precipitation is less. There is, too, a quite decided difference in the amount of snowfall occurring annually in each section; thus, in Tidewater Virginia the ten-year average is 11.8, while in Middle Virginia it is 15.6, and in the Great Valley, 26.3 inches. Again, there is a difference of about a month in the time of first snowfall each year, the month being October in the Great Valley and November in the Middle and Tidewater divisions. The last snow is generally a month later in the spring, or May, in the Great Valley.

The average seasonal and annual precipitation for the three sections is as follows: Tidewater Virginia, eleven to thirty-three years: Winter, 3.32 inches; spring, 4.04 inches; summer, 4.76 inches; autumn, 3.43 inches; annual, 46.61 inches. Average number of days with snow each year, 6; average amount of snowfall each year, 11.8 inches; average number of thunderstorms each year, 27. Middle Virginia, eleven to nineteen years: Winter, 3.23 inches; spring, 3.75 inches; summer, 3.94 inches; autumn, 3.27 inches; annual, 42.57 inches; average number of thunderstorms each year, 23; average number of days with snow each year, 7; average amount of snowfall each year, 15.6 inches. The Great Valley, eleven to twenty-four years: Winter, 3.24 inches; spring, 3.84 inches; summer, 4.42 inches; autumn, 2.82 inches; annual, 42.95 inches; average number of thunderstorms each year, 23; average number of days with snow each year, 14; average amount of snowfall each year, 26.3 inches.

AVERAGE MONTHLY PRECIPITATION.

Division.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Tidewater Virginia.....	2.87	3.95	4.17	3.73	4.06	3.72	5.48	5.08	3.81	3.80	2.64	3.18
Middle Virginia.....	3.24	3.49	3.63	3.36	4.49	4.20	4.59	4.11	3.86	3.80	2.63	3.02
The Great Valley.....	2.88	3.87	4.08	3.10	4.34	4.66	4.44	4.14	3.23	2.97	2.25	3.00
State.....	3.00	3.37	3.96	3.40	4.30	4.16	4.84	4.44	3.63	3.52	3.17	3.07

AVERAGE NUMBER OF DAYS WITH 0.01 INCH, OR MORE, MONTHLY AND ANNUALLY.

Division.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Tidewater Virginia.....	10	10	11	9	12	10	11	10	8	8	8	9	114
Middle Virginia.....	8	7	8	7	10	9	11	9	6	6	6	6	94
The Great Valley.....	9	9	10	9	12	12	11	9	7	6	7	8	107
State.....	9	9	10	8	11	10	11	9	7	7	7	8	106

Wind.—The prevailing direction of the wind for Tidewater Virginia is northeast; for Middle Virginia, northwest; for the Great Valley, west. Local variations from the prevailing direction occur in each of the three divisions, due for the most part to topography. In general, the most decided lack of agreement is to be found in the great valley division, owing to differences in the trend of the many smaller valleys of this region. The mean annual hourly velocity of the wind, determined from regular Weather Bureau stations having six or more years' record, is for the State, 6.3 miles.

Winds blowing at the rate of 25 or more miles per hour are uncommon in the Middle and Great Valley divisions, and when they do occur usually precede and accompany severe thunderstorms of the late summer. In that part of the tidewater division bordering on the Atlantic Ocean and Chesapeake Bay, however, such velocities are not infrequent, while occasionally winds of over 50 miles per hour are recorded.

PREVAILING WIND DIRECTIONS, MONTHLY AND ANNUALLY.

Division.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
Tidewater Virginia.....	NE.	SW.	SW.	NE.	NE.	SW.	SW.	SW.	NE.	NE.	SW.	SW.	SW.
Middle Virginia.....	NW.	NW.	SW. NW.	NW.	NE.	NW.	SW.	S.	NE.	NW.	NW.	NW.	NW.
The Great Valley.....	NW.	W. NW.	W.	W.	W.	W.	W.	W.	W.	W.	W.	W.	W.
State.....	NW.	NW.	SW.	NE. W. NW.	NE.	SW. W. NW.	SW.	S. SW. W.	NE.	NE. W. NW.	SW. W. NW.	N. SW. W. NW.	SW. W. NW.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Accomac (see Norfolk).		Tidewater Vir-		Fairfax (see Fredericks-		Middle Virginia.	
Albemarle.	Charlottesville..	ginia.	258	burg).		do.	
Alexandria (see Freder-		Middle Virginia..		Fauquier (see Stanards-		do.	
icksburg).		do.		ville).		do.	
Alleghany (see Hot		The great valley..		Floyd (see Blacksburg).		The great valley..	
Springs).				Fluvanna (see Char-		Middle Virginia..	
Amelia (see Richmond).		Middle Virginia..		lottesville).		do.	
Amherst (see Lynch-		do.		Franklin (see Lynch-		do.	
burg).				burg).		The great valley..	
Appomattox (see Lynch-		do.		Frederick (see Dale En-		do.	
burg).				terprise).		do.	
Augusta.	Staunton.....	The great valley..	255	Giles (see Blacksburg).		Tidewater Vir-	
Bath.	Hot Springs.....	do.	254	Gloucester (see Hamp-		ginia.	
Bedford (see Lynch-		Middle Virginia..		ton).		Middle Virginia..	
burg).				Goochland (see Char-		do.	
Bland (see Blacksburg).		The great valley..		lottesville).		do.	
Botetourt (see Hot		do.		Grayson (see Wytheville).		The great valley..	
Springs).				Greene.	Stanardsville..	Middle Virginia..	256
Brunswick (see Rich-		Middle Virginia..		Greensville (see Spotts-		Tidewater Vir-	
mond).				ville).		ginia.	
Buchanan (see Big Stone		The great valley..		Hallfax (see Lynchburg).		Middle Virginia..	
Gap).				Hanover (see Richmond).		Tidewater Vir-	
Buckingham (see Char-		Middle Virginia..		Henrico.	Richmond.....	ginia.	
lottesville).				Henry (see Lynchburg).		do.	260
Campbell.	Lynchburg.....	do.	264	Highland (see Hot		Middle Virginia..	
Caroline (see Freder-		Tidewater Vir-		Springs).		The great valley..	
icksburg).		ginia.		Isle of Wight (see Spotts-		do.	
Carroll (see Wytheville).		The great valley..		ville).		Tidewater Vir-	
Charles City (see Rich-		Tidewater Vir-		James City (see Spotts-		ginia.	
mond).		ginia.		ville).		do.	
Charlotte (see Lynch-		Middle Virginia..		King and Queen (see		do.	
burg).				Richmond).		do.	
Chesterfield (see Rich-		do.		King George (see Fred-		do.	
mond).				ericksburg).		do.	
Clarke (see Dale Enter-		The great valley..		King William (see Rich-		do.	
prise).				mond).		do.	
Craig (see Hot Springs).		do.		Lancaster (see Warsaw).		do.	
Culpeper (see Stanards-		Middle Virginia..		Lee (see Big Stone Gap).		The great valley..	
ville).				Loudoun (see Stanards-		Middle Virginia..	
Cumberland (see Rich-		do.		ville).		do.	
mond).				Louis (see Charlottes-		do.	
Dickenson (see Big Stone		The great valley..		ville).		do.	
Gap).				Lunenburg (see Rich-		do.	
Dinwiddie (see Rich-		Middle Virginia..		mond).		do.	
mond).				Madison (see Stanards-		do.	
Elizabeth City.	Hampton.....	Tidewater Vir-	266	ville).		do.	
Essex (see Warsaw).		ginia.		Mathews (see Hampton).		Tidewater Vir-	
		do.				ginia.	

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Mecklenburg (<i>see</i> Richmond).		Middle Virginia.		Richmond.	Warsaw.	Tidewater Virginia).	259
Middlesex (<i>see</i> Warsaw).		Tidewater Virginia.		Roanoke (<i>see</i> Blacksburg).		The great valley.	
Montgomery.	Blacksburg.	The great valley.	263	Rockbridge (<i>see</i> Staunton).		do.	
Nansemond (<i>see</i> Norfolk).		Tidewater Virginia.		Rockingham.	Dale Enterprise.	do.	253
Nelson (<i>see</i> Charlottesville).		Middle Virginia.		Russell (<i>see</i> Big Stone Gap).		do.	
New Kent (<i>see</i> Richmond).		Tidewater Virginia.		Scott (<i>see</i> Big Stone Gap).		do.	
Norfolk.	Norfolk.	do.	267	Shenandoah (<i>see</i> Dale Enterprise).		do.	
Northampton (<i>see</i> Norfolk).		do.		Smyth (<i>see</i> Wytheville).		do.	
Northumberland (<i>see</i> Warsaw).		do.		Southampton (<i>see</i> Spottsville).		Tidewater Virginia.	
Nottoway (<i>see</i> Richmond).		Middle Virginia.		Spottsylvania.	Fredericksburg.	Middle Virginia.	257
Orange (<i>see</i> Charlottesville).		do.		Stafford (<i>see</i> Fredericksburg).		do.	
Page (<i>see</i> Stanardsville).		The great valley.		Surry.	Spottsville.	Tidewater Virginia.	265
Patrick (<i>see</i> Lynchburg).		Middle Virginia.		Sussex (<i>see</i> Spottsville).		do.	
Pittsylvania (<i>see</i> Lynchburg).		do.		Tazewell (<i>see</i> Big Stone Gap).		The great valley.	
Powhatan (<i>see</i> Richmond).		do.		Warren (<i>see</i> Dale Enterprise).		do.	
Prince Edward (<i>see</i> Lynchburg).		do.		Warwick (<i>see</i> Hampton).		Tidewater Virginia.	
Prince George (<i>see</i> Spottsville).		Tidewater Virginia.		Washington (<i>see</i> Wytheville).		The great valley.	
Princess Anne (<i>see</i> Norfolk).		do.		Westmoreland (<i>see</i> Warsaw).		Tidewater Virginia.	
Prince William (<i>see</i> Fredericksburg).		Middle Virginia.		Wise.	Big Stone Gap.	The great valley.	261
Pulaski (<i>see</i> Blacksburg).		The great valley.		Wythe.	Wytheville.	do.	260
Rappahannock (<i>see</i> Stanardsville).		Middle Virginia.		York (<i>see</i> Hampton).		Tidewater Virginia.	

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.
		° F.	° F.	° F.	° F.		° F.		Minimum below 32°.
Dale Enterprise.	1	54	65	39	104	July, 1887.	-22	February, 1899.	18
Hot Springs.	2	51	62	40	95	July, 1902.	-18	January, 1895.	2
Staunton.	3	55	66	44	103	July, 1898.	-13	do.	26
Stanardsville.	4	54	65	43	101	August, 1900.	-12	February, 1899.	15
Fredericksburg.	5	56	66	46	103	July, 1898.	-21	do.	32
Charlottesville.	6	56	67	46	100	June, 1894.	-9	do.	23
Warsaw.	7	56	66	46	102	July, 1900.	-8	January, 1893.	29
Richmond.	8	58	68	49	102	August, 1900.	-3	February, 1899.	36
Big Stone Gap.	9	54	67	41	97	July, 1893.	-26	January, 1893.	13
Wytheville.	10	53	64	42	97	August, 1900.	-11	January, 1895.	9
Blacksburg.	11	52	64	40	96	do.	-13	do.	6
Lynchburg.	12	57	67	48	102	July, 1887.	-6	January, 1893.	28
Spottsville.	13	58	69	47	101	July, 1900.	-15	do.	35
Hampton.	14	59	67	52	98	July, 1901.	4	February, 1899.	16
Norfolk.	15	59	68	51	102	July, 1887.	2	February, 1895.	24

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Dale Enterprise.	1	Oct. 10	Apr. 25	Sept. 12	May 26	Inches. 43.3	Inches. 11.6	Inches. 13.7	Inches. 9.2	Inches. 8.8
Hot Springs.	2	Sept. 29	May 2	Sept. 13	May 30	42.4	10.5	12.9	9.1	9.9
Staunton.	3	Oct. 13	Apr. 25	Sept. 22	May 22	39.7	10.6	11.6	9.1	8.4
Stanardsville.	4	Oct. 23	Apr. 16	Oct. 8	May 29	42.4	10.9	12.4	10.0	9.1
Fredericksburg.	5	Oct. 19	Apr. 4	Oct. 2	Apr. 24	41.3	11.7	11.1	9.3	9.2
Charlottesville.	6	Oct. 20	Apr. 9	Oct. 1	do.	49.8	12.1	16.2	11.6	9.9
Warsaw.	7	Oct. 22	Apr. 14	do.	Apr. 28	39.4	10.4	11.8	8.6	8.6
Richmond.	8	Nov. 3	Apr. 2	Oct. 18	Apr. 20	43.6	11.6	13.0	9.4	9.6
Big Stone Gap.	9	Oct. 10	May 2	Sept. 22	May 29	50.5	14.4	15.2	8.2	12.7
Wytheville.	10	Oct. 7	Apr. 22	Sept. 14	May 26	41.9	11.5	13.6	7.7	9.1
Blacksburg.	11	Sept. 30	Apr. 25	Sept. 22	May 13	39.4	10.4	12.5	7.3	9.2
Lynchburg.	12	Nov. 1	Apr. 14	Oct. 4	May 7	44.0	11.2	12.0	10.1	10.7
Spottsville.	13	Oct. 14	Apr. 12	Oct. 1	Apr. 22	48.8	12.7	14.3	11.2	10.6
Hampton.	14	Nov. 18	Mar. 27	Oct. 27	Apr. 6	44.2	11.4	13.8	9.7	9.3
Norfolk.	15	Nov. 12	do.	Oct. 15	Apr. 26	50.0	12.8	15.9	10.7	10.6

VIRGINIA.

The Great Valley: ROCKINGHAM COUNTY. Station: DALE ENTERPRISE.

L. J. HEATWOLE, Observer.

[Established by Signal Service July, 1884. Latitude, 38° 27' N. Longitude, 78° 53' W. Elevation, 1,450 feet.]

This station is in the south-central portion of the county. The instruments are located 1 mile east of the village of Dale Enterprise, on rising ground, with hills to the east and west from 100 to 150 feet above the station. North Mountain lies west, distant 8 miles. The surface contours in the immediate vicinity are gently rolling.

The instruments in use are a maximum and minimum thermometer and a rain gage. Thermometers are 5 feet above the sod, and are exposed in a regular cotton region shelter provided by the Weather Bureau, which is situated on the lawn 50 feet south of the observer's dwelling. The rain gage has a good open exposure on the lawn, being 70 feet distant from the nearest house and 50 feet from the nearest tree, which is 20 feet high. The top of the gage is 3 feet above the ground.

Temperature means are calculated from readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1880, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	36	46	72	25	-17	49	28	2.5	8	2.0	4.2	5.4	24.0	SW.
January.....	30	41	75	20	-16	48	21	2.9	9	1.2	6.0	8.0	26.0	S.
February.....	32	42	75	21	-22	47	21	3.4	9	3.6	3.6	9.6	18.0	S.
Winter mean.....	32	43		22				8.8	26	6.8	13.8	23.0		S.
March.....	40	53	82	28	-1	50	30	3.6	11	0.5	6.9	7.2	18.0	W.
April.....	51	64	92	38	12	59	42	3.2	10	1.6	3.9	1.4	8.0	SW.
May.....	59	76	97	42	19	72	50	4.8	14	5.7	12.7	T.	1.0	SW.
Spring mean.....	50	64		36				11.6	35	7.8	23.5	8.7		SW.
June.....	64	78	98	49	31	78	64	5.6	14	1.4	8.6	0.0	0.0	W.
July.....	74	86	104	61	43	83	68	4.0	14	2.2	6.1	0.0	0.0	W.
August.....	72	84	100	59	43	78	67	4.1	11	1.7	5.8	0.0	0.0	SW.
Summer mean.....	70	83		56				13.7	39	5.3	20.5	0.0		W.
September.....	65	78	100	52	28	80	57	3.8	9	6.0	1.6	0.0	0.0	NE.
October.....	54	67	90	42	13	65	49	3.0	7	2.3	2.5	T.	0.5	S. NE.
November.....	46	60	78	32	7	62	39	2.4	8	0.6	6.5	1.0	5.0	W.
Fall mean.....	55	68		42				9.2	24	8.9	10.6	1.0		NE.
Annual mean.....	52	65	104	39	-22			43.3	124	28.8	68.4	32.7		SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1884, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1884	Dec. 29, 30.....	June 23, 24; July 12, 13, 19, 20, 28, 29; Aug. 9.	1899	Jan. 2; Feb. 1, 9-15; Dec. 31.	June 5-8, 23, 24; July 3, 4, 13, 16, 20-23, 27, 28; Aug. 3-5, 13, 20-22, 25; Sept. 6.
1895	Jan. 1, 13; Feb. 3, 5-8, 11, 14, 15; Dec. 14.	June 2, 3; Sept. 18-23.	1900	Feb. 1, 2, 18-20; Mar. 18; Dec. 17.	July 6, 15-21; Aug. 6-15, 17, 19, 26, 27; Sept. 6-13.
1896	Jan. 5, 6; Feb. 21, 22; Mar. 13.	Aug. 9.	1901	Dec. 21, 22.....	July 1.
1897	Jan. 28-31.....	June 15; July 2-4, 7, 9; Sept. 8, 13, 14, 16, 17.	1902	None.....	June 12; July 3, 5, 6, 10, 17-19, 27.
1898	Jan. 2, 31; Feb. 3.....	June 25, 30; July 1-3, 8.	1903	Feb. 18, 19.....	Aug. 25.

VIRGINIA.

The Great Valley: BATH COUNTY. Station: HOT SPRINGS.

J. P. SCOTT, Observer.

[Established by Weather Bureau June, 1892. Latitude, 38° 00'. Longitude, 79° 50'. Elevation, 2,195 feet.]

This station is situated in a narrow depression or valley that crosses the mountain range well up near the summit. The elevation of this range is 3,200 feet above mean sea level. The general surroundings of the station are mountainous and rugged and the floor of the valley in which it is located is gently rolling.

A maximum and minimum thermometer and a rain gage constitute the instrumental equipment. The thermometers are exposed in a regulation cotton region shelter, which is set up at a point 100 yards due north of the Homestead Hotel. They are 5 feet above the sod. The rain gage occupies a point 80 feet due east of the bath house. The exposure is an excellent one, there being no trees within 50 feet and no buildings or other structures near by except the bath house.

Temperature means are determined from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth. in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	32	42	65	24	— 9	38	26	3.3	6	3.1	9.5	4.2	12.0
January.....	30	40	63	21	—18	36	23	2.7	8	1.1	2.3	7.4	12.0
February.....	30	40	75	21	—14	35	21	3.9	8	4.1	0.2	7.3	10.0
Winter mean.....	31	41		22				9.9	22	8.3	12.0	18.9	
March.....	43	53	80	32	2	50	38	3.7	9	1.0	3.9	4.6	9.6
April.....	50	61	87	38	12	57	45	2.8	8	1.6	8.3	1.7	6.0
May.....	61	73	91	49	18	66	55	4.0	10	3.4	7.7	0.1	1.0
Spring mean.....	51	62		40				10.5	27	6.0	19.9	6.4	
June.....	67	78	93	56	32	73	62	5.1	12	2.4	6.2	0.0	0.0
July.....	70	82	95	59	35	76	67	4.5	8	1.4	3.8	0.0	0.0
August.....	70	81	92	59	44	74	67	3.3	8	1.0	6.2	0.0	0.0
Summer mean.....	69	80		58				12.9	28	4.8	16.2	0.0	
September.....	63	75	91	53	22	69	59	3.5	6	4.8	1.1	0.0	0.0
October.....	53	63	85	42	14	57	50	3.5	6	2.5	0.7	0.1	0.5
November.....	42	53	79	32	0	48	35	2.1	6	1.0	2.4	0.7	2.0
Fall mean.....	53	64		42				9.1	18	8.3	4.2	0.8	
Annual mean.....	51	62	95	40	—18			42.4	95	27.4	52.3	26.1	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 29-31.....	None.	1899	Feb. 1, 9-11, 13.....	None.
1895	Jan. 13; Feb. 3, 5-9...	Do.	1900	Jan. 31; Feb. 24.....	Do.
1896	None.....	Do.	1901	Jan. 31; Dec. 15, 20...	Do.
1897	Jan. 24, 27-29.....	Do.	1902	None.....	July 4.
1898	Feb. 23.....	Do.	1903	Feb. 17, 18; Nov. 30..	None.

VIRGINIA.

The Great Valley: AUGUSTA COUNTY. Station: STAUNTON.

W. C. HEDRICK, Observer.

Established by Signal Service November, 1889. Latitude, 38° 09' N. Longitude, 79° 05' W. Elevation, 1,360 feet.]

The city of Staunton is situated about the center of Augusta County; the station is located in the grounds of the Western State Hospital, in the southeast suburbs of the city. The surrounding country is rolling, with a gradual slope to the northeast. Blue Ridge and North Mountains lie equidistant 12 miles east and west, respectively, from the station.

The instrumental equipment consists of a maximum and minimum thermometer and a rain gage. The thermometers are exposed in a cotton region shelter, which is attached to the railing of a gallery in the rear of the main asylum building. The thermometers are 35 feet above the sod. The rain gage is set up on a lawn that occupies the quadrangle, or inner court, formed by the asylum buildings. The top of the gage is 4 feet above the sod; the nearest building is 40 feet distant, northeast; the nearest tree, 45 feet northwest. The exposure is excellent.

The mean temperatures are determined from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY, 1893, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	37	47	70	28	- 3	40	32	2.5	6	2.5	6.4	2.8	6.0	W.
January.....	34	44	68	25	- 13	40	24	2.7	7	1.3	2.3	6.7	10.0	NW.
February.....	34	43	73	24	- 12	39	24	3.2	7	3.3	0.3	11.5	18.0	NW.
Winter mean.....	35	45		26				8.4	20	7.1	9.0	21.0		NW.
March.....	45	56	84	34	4	52	39	3.2	8	0.4	3.4	5.6	13.0	SW.
April.....	53	65	93	41	19	58	50	3.1	8	1.6	8.4	1.0	6.0	N. S.
May.....	64	76	94	52	31	69	61	4.3	12	3.3	7.9	0.0	0.0	S.
Spring mean.....	54	66		42				10.6	28	5.3	19.7	6.6		S.
June.....	71	82	98	59	41	74	65	4.5	10	2.6	5.0	0.0	0.0	S. SW.
July.....	75	87	103	64	48	78	71	3.4	9	1.6	5.4	0.0	0.0	SW.
August.....	74	86	102	63	47	79	72	3.7	8	2.1	6.7	0.0	0.0	SW.
Summer mean.....	73	85		62				11.6	27	6.3	17.1	0.0		SW.
September.....	68	80	100	56	32	74	66	3.6	6	7.2	3.5	0.0	0.0	NE, E
October.....	57	68	90	45	20	61	52	3.3	5	3.4	0.5	T.	T.	NE.
November.....	46	57	78	36	10	53	40	2.2	6	1.2	1.4	6.4	2.0	SW.
Fall mean.....	57	68		46				9.1	17	11.8	5.4	6.4	18.0	NE.
Annual mean.....	55	66	103	44	-13			39.7	92	30.5	51.2	34.0		SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY, 1894, TO DECEMBER, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 29.....	June 24; July 12, 20, 27, 28.	1900	None.....	July 4, 6, 16-21; Aug. 6, 7, 9-12, 14-17.
1895	Jan. 13; Feb. 3, 6, 8, 9, 14.	June 1-3; July 18; Aug. 11; Sept. 18, 20-23.			19, 26, 27; Sept. 6-11.
1896	None.....	July 27; Aug. 5, 6, 9, 12.	1901	do.....	June 25; July 1
1897	do.....	Sept. 13, 16.	1902	do.....	July 4, 5, 6, 17, 18, 20.
1898	do.....	June 25; July 1-3; Aug. 31; Sept. 1, 3, 6.	1903	Feb. 19.....	Aug. 25.
1899	Jan. 2; Feb. 1, 9-11, 14.	June 6, 7, 24; July 16, 21-23; Aug. 3-5, 21, 22; Sept. 6, 8.			

VIRGINIA.

Middle Virginia: GREENE COUNTY. Station: STANARDSVILLE.

G. W. SHELTON, Observer.

[Established by Signal Service January, 1891. Latitude, 38° 17' N. Longitude, 78° 26' W. Elevation, 670 feet.]

Standardsville is in the southwestern part of Greene County, on the lower slopes of the eastern face of the Blue Ridge Mountains. The immediate vicinity is rolling in character to the eastward and mountainous to the west. The station is situated on the top of a commanding hill at the east end of the village and is about 80 feet above a relatively shallow depression that runs north and south through the village.

The instrumental equipment comprises a maximum and minimum thermometer and a rain gage. Thermometers are exposed in a regulation cotton region shelter, which stands 100 feet north of the observer's dwelling, in a garden. They are about 4 feet above the ground. The rain gage exposure is also in the garden. It is 24 feet east of a 12-foot high building, and about 100 feet north of the observer's dwelling. The location is free from any disturbing influences.

Mean temperatures are determined from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY, 1893, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	36	46	70	25	— 3	40	29	3.0	5	3.0	4.2	1.6	4.5
January.....	32	42	69	23	— 1	39	25	2.9	6	2.8	2.5	6.4	10.0
February.....	33	43	72	23	— 12	38	26	3.2	6	3.1	0.6	5.7	10.0
Winter mean.....	33	44		24				9.1	17	8.9	7.3	13.7	
March.....	45	56	84	34	10	53	40	3.3	6	0.7	4.5	2.7	6.0
April.....	53	65	94	41	19	58	49	3.1	5	2.9	3.2	T.	T.
May.....	64	76	95	51	30	68	61	4.5	8	3.4	5.7	0.0	0.0
Spring mean.....	54	66		42				10.9	19	7.0	13.4	2.7	
June.....	71	82	100	59	36	74	64	3.8	7	1.8	2.5	0.0	0.0
July.....	75	87	111	64	50	79	71	4.6	9	3.9	5.2	0.0	0.0
August.....	73	85	101	62	40	80	68	4.0	6	3.9	6.1	0.0	0.0
Summer mean.....	73	85		62				12.4	22	9.6	13.8	0.0	
September.....	68	80	99	56	33	72	61	3.6	5	3.5	3.1	0.0	0.0
October.....	56	67	90	46	21	60	52	4.1	5	4.0	12.0	0.0	0.0
November.....	44	55	78	33	13	50	37	2.3	4	1.6	2.5	0.3	4.5
Fall mean.....	56	67		45				10.0	14	9.1	17.6	0.3	
Annual mean.....	54	65	101	43	— 12			42.4	72	34.6	52.1	16.7	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY, 1894, TO OCTOBER, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Dec. 20, 30.....	June 23, 24, 30; July 12, 13, 20, 28, 29; Aug. 9.	1900	Jan. 2; Feb. 1, 2, 18-20, 25-27.	July 4-6, 15-19; Aug. 6-16, 19, 26; Sept. 6-11.
1895	Jan. 1, 5, 13, 14; Feb. 3-10; Dec. 14.	May 30; June 1-3; Aug. 10, 11, 29; Sept. 12, 19-23, 26.	1901	Jan. 4, 20; Feb. 1, 22-24; Dec. 5, 6, 16-24.	June 11, 24, 26; July 1-3, 5, 6, 25, 30, 31.
1896	Jan. 4-6; Feb. 17, 18, 20-22.	Aug. 6, 9, 10; Sept. 19.	1902	Jan. 1, 2, 7, 31; Feb. 3, 4, 6-8, 14, 18-20; Mar. 18, 19; Dec. 6-9, 24-31.	June 13, 14.
1897	Jan. 26, 28, 29; Dec. 25.	Sept. 9-11.	1903	Jan. 1, 2, 8-14, 20, 21, 24; Feb. 17-20, 22, 23.	May 20; July 7-11, 25, 26, 29, 30.
1898	Feb. 2-4; Dec. 14.....	July 1-4.			
1899	Jan. 2, Feb. 1, 5-15; Dec. 29, 30, 31.	June 6, 7, 8; July 13, 16, 21-23; Aug. 20, 1; Sept. 6.			

VIRGINIA.

Middle Virginia: SPOTTSYLVANIA COUNTY. Station: FREDERICKSBURG.

W. D. RICHARDSON, Observer.

[Established by Weather Bureau April, 1893. Latitude, 38° 18' N. Longitude, 77° 27' W. Elevation, 100 feet.]

The station is situated on top of Willis Hill (Maryes Heights), just beyond the southwest city limits. The land slopes eastward to the Rappahannock River, about one-quarter of a mile away, and westward to Hazel Run, at the foot of the hill.

A maximum and minimum thermometer and a rain gage comprise the instruments at the station. Thermometers are exposed in a cotton region shelter; shelter stands on the lawn 100 feet southeast of observer's dwelling, which is 35 feet high. The instruments are 4 feet 3 inches above the sod. The rain gage is set up in a box support about 100 feet from the observer's dwelling and about 30 feet west of the shelter. The nearest tree stands 30 feet to the east and is 30 feet high. The top of the gage is 3 feet 3 inches above the sod.

The mean temperatures are obtained from the daily extremes.

All tabulated data for period from May 1, 1893, to December 31, 1903, with exception of September, 1893, October, November, and December, 1894, January and February, 1895, and January and February, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	37	46	70	28	0	52	22	3.0	8	3.2	1.8	0.8	3.0	N.
January.....	36	43	68	26	- 4	45	30	2.6	8	1.7	4.6	3.7	5.0	NW.
February.....	33	42	71	24	- 21	38	26	3.0	8	6.4	6.8	6.0	15.0	NW.
Winter mean.....	35	44		26				9.2	24	11.3	13.2	10.5		NW.
March.....	46	56	86	36	14	52	41	3.7	10	3.0	5.4	2.0	6.0	SW.
April.....	55	66	92	44	21	58	52	3.6	8	2.3	1.5	T.	T.	NW.
May.....	65	76	96	54	35	60	62	4.4	11	4.6	5.2	0.0	0.0	S.
Spring mean.....	55	66		45				11.7	29	9.9	12.1	2.0		SW.
June.....	73	84	101	63	41	76	68	3.8	9	3.6	3.4	0.0	0.0	S.
July.....	78	88	103	68	49	81	73	4.0	11	5.0	3.4	0.0	0.0	S.
August.....	76	86	100	67	50	81	74	3.3	8	2.0	4.4	0.0	0.0	S.
Summer mean.....	76	86		66				11.1	28	10.6	11.2	0.0		S.
September.....	70	80	100	59	36	75	67	2.8	6	0.7	5.4	0.0	0.0	E.
October.....	57	68	88	47	25	63	53	4.1	7	5.2	4.4	0.0	0.0	NW.
November.....	46	56	81	36	12	52	40	2.4	7	2.0	1.6	1.0	1.0	NW.
Fall mean.....	58	68		47				9.3	20	7.9	11.4	1.0		NW.
Annual mean.....	56	66	103	46	-21			41.3	101	39.7	47.9	13.5	15.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO MARCH 31, 1903

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	None.....	June 17, 23-25, 28, 29; July 12-14, 19, 20, 26-29; Aug. 9; Sept. 9, 10.	1899	Feb. 9-11, 15.....	June 7, 8; July 13, 22; Sept. 6.
1895	None.....	None.	1900	None.....	Sept. 6, 9, 11, 12.
1896	None.....	July 27, 28; Aug. 5-13, 23; Sept. 3.	1901	do.....	None.
1897	Jan. 29.....	June 30; July 3; Aug. 4.	1902	do.....	Do.
1898	Feb. 4.....	June 9, 11, 12, 24-26, 28; July 1-4, 29-31; Aug. 1, 3, 7, 8, 23, 24, 31; Sept. 1-3, 5, 6.	1903		July 2-4, 9-11, 29, 30; Aug. 24, 25, 28.

VIRGINIA.

Middle Virginia: ALBEMARLE COUNTY. Station: CHARLOTTESVILLE.

Prof. O. M. STONE, Observer.

[Established by Weather Bureau, December, 1891. Latitude 38° 02' N. Longitude 78° 23' W. Elevation, 800 feet.]

This station is located at the Leander McCormick Observatory on top of Observatory Mountain, 3 miles west of the city of Charlottesville. The immediate surroundings are sharply rolling and mountainous except on the east where the land falls into the valley of the Rivanna River, beyond which rise Southwestern Mountains with elevations from 1,400 to 1,800 feet above mean sea level.

The instrumental equipment consists of a maximum and minimum thermometer and a rain gage. The thermometers are exposed in a cotton region shelter 5 feet above the sod; the shelter is due west of the observatory dome, which is 45 feet high, and 56 feet slightly north of east from the transit house, 10 feet high. The rain gage is 5 feet due east of the shelter, and 45 feet due west of the observatory dome. The top of the gage is 2 feet above the sod and the exposure is free from disturbing influences.

Mean temperatures are taken from the daily extremes. Record of rainfall is broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year. ^a	Total amount for the wettest year. ^a	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	35	48	70	29	4	44	30	3.0	6			1.8	3.0
January.....	35	44	69	26	— 1	41	27	3.6	9			3.7	7.5
February.....	37	45	76	26	— 9	47	28	3.3	8			8.3	18.0
Winter mean.....	36	46		27				9.9	23			13.8	
March.....	46	57	85	36	10	53	41	3.6	9			3.5	5.0
April.....	56	66	95	45	25	60	52	3.4	9			T.	T.
May.....	66	78	96	55	36	71	63	5.1	11			0.0	0.0
Spring mean.....	56	67		45				12.1	29			3.5	
June.....	73	83	100	63	47	77	71	5.5	10			0.0	0.0
July.....	76	86	97	67	52	79	72	5.7	12			0.0	0.0
August.....	75	83	97	65	53	80	72	5.0	12			0.0	0.0
Summer mean.....	75	84		65				16.2	34			0.0	
September.....	67	78	90	60	43	70	63	5.2	8			0.0	0.0
October.....	58	68	84	47	26	59	54	3.5	6			0.0	0.0
November.....	47	57	80	38	15	54	43	2.9	6			0.1	1.0
Fall mean.....	57	68		48				11.6	20			0.1	
Annual mean.....	56	67	100	46	— 9			49.8	106			17.4	18.0

^a Driest and wettest years could not be computed on account of many breaks in the record.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	January and February none; December missing.	June 12, 22-24, 28-30; July, August, and September missing.	1899	Jan. 2; Feb. 10-15; Mar. 7; Dec. 28-31.	July 23, August and September missing.
1895	January missing; Feb. 2, 3, 5-10, 13, 14; Dec. 14.	May 30, 31; June 1-4; July 18, 21; Aug. 9-11, 28, 29; September missing.	1900	Jan. 1, 31; Feb. 1, 2, 19, 25-27.	June, July, August, and September missing.
1896	Jan. 6; Feb. 20, 21.....	Apr. 18; May 10, 11; June, July, August, and September missing.	1901	Dec. 16, 17, 20-22.....	July 1, 23.
1897	No reports.....	No reports.	1902	Feb. 3, 5.....	June 13; July 5, 6, 17-19.
1898	January and February missing; December none.	July 2.	1903	Feb. 17-19.....	July 11, 26, 30; Aug. 25.

VIRGINIA.

Tidewater Virginia: RICHMOND COUNTY. Station: WARSAW.

C. H. CONSTABLE, Observer.

[Established by Weather Bureau in 1892. Latitude, 37° 56' N. Longitude, 76° 45' W. Elevation, 160 feet.]

Warsaw is situated in the center of Richmond County. Its surroundings are slightly rolling with a gentle slope westward to the Rappahannock River about 4 miles distant. The village is located on the top of a ridge which runs generally parallel with the Rappahannock; the ridge is from 140 to 160 feet above mean sea level. The station is 1½ miles north of the village.

A maximum and minimum thermometer and a rain gage comprise the instrumental equipment. Of these, the thermometers are exposed in a cotton region shelter which stands 125 feet south of the observer's dwelling in an open lawn. It is 20 feet from the nearest tree. The instruments are 5 feet above the sod.

The rain gage is set up at a point 50 feet southwest of the shelter and 150 feet southwest of the dwelling. A small tree stands 30 feet distant. There are no structures near by.

Temperature means are obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	38	47	60	29	- 2	41	33	2.4	5	1.6	2.7	1.8	5.0	N.
January.....	35	44	67	26	- 8	39	26	2.5	6	2.0	2.4	3.8	7.0	N.
February.....	35	45	72	25	0	40	26	3.7	6	3.9	5.0	4.9	6.0	N.
Winter mean.....	36	45	.....	27	.....	.....	.....	8.6	17	7.5	10.1	10.5	.....	N.
March.....	46	57	84	35	9	53	41	3.5	7	1.0	2.2	1.2	3.0	S.
April.....	55	66	96	43	24	59	50	3.2	6	3.0	3.4	T.	T.	S.
May.....	66	77	95	54	36	70	63	3.7	8	4.5	4.4	0.0	0.0	S.
Spring mean.....	56	67	.....	44	.....	.....	.....	10.4	21	8.5	10.0	1.2	.....	S.
June.....	74	84	101	63	48	76	68	3.5	6	0.9	1.9	0.0	0.0	S.
July.....	78	88	102	68	48	80	74	4.8	8	4.5	6.7	0.0	0.0	S.
August.....	76	86	102	67	50	81	74	3.5	6	3.0	2.9	0.0	0.0	S.
Summer mean.....	76	86	.....	66	.....	.....	.....	11.8	20	8.4	11.5	0.0	.....	S.
September.....	70	80	98	60	38	74	67	2.5	5	3.0	4.5	0.0	0.0	S.
October.....	58	67	87	48	28	63	52	3.4	5	3.6	6.1	0.0	0.0	N.
November.....	47	56	78	37	16	53	39	2.7	5	2.4	3.4	0.3	1.5	N.
Fall mean.....	58	68	.....	48	.....	.....	.....	8.6	15	9.0	14.0	0.3	.....	N.
Annual mean.....	56	66	102	46	- 8	.....	.....	39.4	73	33.4	45.6	12.0	7.0	S.

a Uncertain, as the accumulated amounts in February, 1899, were carried forward for five days until a measurement was taken.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY, 1894, TO DECEMBER, 1903.

Year.	Minimum below 15°.	Maximum 95° or above.	Year.	Minimum below 15°.	Maximum 95° or above.
1894	Dec. 29, 30.....	June 22-25, 28, 29; July 12-14, 20, 21, 27-29; Aug. 9.	1900	Jan. 2, 3, 27, 30; Feb. 1-3, 18-20, 25-28; Mar. 12, 18; Dec. 15, 17.	July 4-8, 15-21; Aug. 7-13, 15, 16, 18, 26, 27, 29; Sept. 7-9, 11, 12.
1895	Jan. 13, 14; Feb. 3, 5-12, 14, 15, 17, 23; Dec. 6.	May 30, 31; June 1-3, 26; July 21; Aug. 9-11, 24, 29; Sept. 21-23.	1901	Jan. 4, 20; Feb. 1, 7, 13, 14, 24, 25, 29; Mar. 6, 7; Dec. missing.	June 30; July 1, 2, 6, 25, 29, 30.
1896	Jan. 5-7; Feb. 17-22; Dec. 4.	April 18, 19; May 18; July 24; Aug. 6, 7, 9, 11-13.	1902	Jan. missing; Feb. 4-6, 9, 11, 12, 14; Dec. 10, 26-28.	June 13, 14; July 5, 6, 10, 17, 19, 20.
1897	Jan. 7, 25, 26, 28-31; Feb. 1; Dec. 25.	June 30; Sept. 2.	1903	Jan. 9, 10, 13, 19; Feb. 18-20.	July 2, 3, 10, 11, 30; Aug. 25.
1898	Feb. 1-4; Dec. 10, 14, 15.	June 12, 25-28; July 1-4, 30; Aug. 8.			
1899	Jan. 1-3, 11, 20, 29; Feb. 1, 2, 10, 14, 15; Dec. 27, 29-31.	June 7, 8; July 13, 16, 20-22; Aug. 21; Sept. 6, 8.			

VIRGINIA.

Tidewater Virginia: HENRICO COUNTY. Station: RICHMOND.

E. A. EVANS, Section Director.

[Established by Weather Bureau, September, 1895. Latitude, 37° 32' N. Longitude, 77° 26' W. Elevation, 144 feet.]

Richmond is situated in the central-western part of Henrico County on the north bank of the James River, and is at the head of tidewater on that stream. The surrounding country is rolling, with maximum elevations of about 250 feet above mean sea level. The local office of the Weather Bureau has been in the Times Building, corner of Bank and Tenth streets, since June 1, 1900; prior to this date in the Chamber of Commerce Building, May 25, 1897, to May 31, 1900, inclusive, and State Library Building, September 23, 1895, to May 24, 1897, inclusive.

All thermometers are exposed on the roof of the office building in a standard instrument shelter. They are 10 feet above the roof and 82 feet above the ground. Temperature means are determined from the readings of the maximum and minimum thermometers. The rain gage, which is of the tipping-bucket pattern, is suitably exposed on the roof of the building. It is 76 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1898, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.						Mean humidity.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.		
												Average depth.	Greatest depth in 24 hours.				
December.....	39	48	69	30	4	41	36	3.4	9	2.6	4.1	2.0	7.2	79	1.80	N.	
January.....	39	47	70	30	10	41	36	2.7	10	2.7	3.3	3.8	4.0	80	1.82	N.	
February.....	37	46	72	28	- 3	43	33	3.4	10	4.4	4.8	6.2	7.5	78	1.58	N.	
Winter mean.....	38	47	.....	29	.....	.....	.....	9.5	29	9.7	12.2	12.0	.....	79	1.73	N.
March.....	50	60	82	40	15	54	44	4.3	12	2.9	1.9	2.2	5.0	82	2.70	N.	
April.....	56	66	90	45	28	58	53	3.9	9	3.6	3.1	0.3	T.	75	3.17	N.	
May.....	67	78	94	57	40	68	66	3.4	14	2.2	3.4	0.0	0.0	77	4.88	N, NE.	
Spring mean.....	58	68	.....	47	.....	.....	.....	11.6	35	8.7	8.4	2.5	.....	78	3.58	N.
June.....	74	84	99	65	52	77	70	3.6	10	3.1	4.8	0.0	0.0	75	6.78	N, SW.	
July.....	80	89	99	70	58	81	79	4.6	10	3.1	6.2	0.0	0.0	77	7.43	N.	
August.....	78	87	102	69	56	83	75	4.8	11	3.7	3.1	0.0	0.0	82	7.43	N, SW.	
Summer mean.....	77	87	.....	68	.....	.....	.....	13.0	31	9.9	14.1	0.0	.....	78	7.01	N.
September.....	71	81	100	62	45	76	69	3.7	8	4.0	4.9	0.0	0.0	81	5.86	N.	
October.....	61	70	88	52	34	65	59	3.4	9	2.6	4.8	0.0	0.0	83	4.16	N.	
November.....	44	58	82	40	19	55	44	3.4	7	2.9	4.8	0.2	0.8	80	2.54	N.	
Fall mean.....	59	70	.....	51	.....	.....	.....	9.4	24	9.5	14.5	0.2	.....	81	4.19	N.
Annual mean.....	58	68	102	49	- 3	.....	.....	43.6	119	37.8	49.2	14.7	7.5	79	4.13	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898 TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1898	.....	June 12, 25, 26, 28; July 1-4, 17, 30; Aug. 25.	1900	Feb. 1, 2.....	July 4-8, 15-21; Aug. 7-17, 19, 25-27; Sept. 7-12.
1899	Jan. 29; Feb. 6, 10-15; Dec. 31.	June 6-8, 15; July 13, 16; Aug. 5, 20-22; Sept. 6.	1901	Dec. 21, 22.....	June 24, 30; July 1-6, 25, 29, 30.

VIRGINIA.

The Great Valley: WISE COUNTY. Station: BIG STONE GAP.

JOHN W. FOX, Sr., Observer.

[Established by Signal Service, March, 1891. Latitude, 36° 52' N. Longitude, 82° 47' W. Elevation, 1,540 feet.]

The town of Big Stone Gap is situated near the southwest boundary line of the county. The surrounding country is very rugged, Stone Mountains being near by on the west, and Wallen Ridge on the south, each with elevations upward of 3,000 feet above sea level. The station is located in the northern suburbs of the town. Instruments consist of a maximum and minimum thermometer and a rain gage. The thermometers are exposed in a regulation cotton-region shelter, which stands 25 feet east of the observer's dwelling on the lawn and over sod, and their elevation above ground is $1\frac{1}{2}$ feet. The rain gage is 15 feet south of the shelter and 20 feet from the house, and there are no near-by structures or trees that interfere with the exposure. The mean temperatures are calculated from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.		
December.....	35	46	69	24	- 5	38	31	3.8	11	4.9	3.0	3.7	6.0	W.
January.....	34	45	68	22	-26	40	20	3.8	11	2.4	6.4	6.2	6.5	W.
February.....	34	46	74	22	-18	40	23	5.1	12	6.2	1.8	5.6	7.0	W.
Winter mean.....	34	46		23				12.7	34	13.5	11.2	15.5		W.
March.....	46	59	82	34	3	55	39	6.4	12	2.1	4.6	3.5	8.5	W.
April.....	53	68	90	39	21	57	49	3.5	10	3.5	2.6	1.0	8.0	W.
May.....	63	79	92	48	26	67	58	4.5	11	5.2	5.2	0.0	0.0	W.
Spring mean.....	54	69		40				14.4	33	10.8	12.4	4.5		W.
June.....	70	84	96	57	33	73	67	4.2	11	3.5	4.9	0.0	0.0	W.
July.....	73	86	97	60	40	76	69	6.0	12	3.9	10.2	0.0	0.0	W.
August.....	72	85	95	60	43	76	68	5.0	10	4.2	9.7	0.0	0.0	W.
Summer mean.....	72	85		59				15.2	33	11.6	24.8	0.0		W.
September.....	66	80	96	53	25	71	64	2.8	6	1.7	1.9	0.0	0.0	N. W.
October.....	55	70	88	40	19	63	47	2.3	6	1.9	4.1	T.	T.	W.
November.....	44	57	77	31	6	49	39	3.1	8	1.7	3.7	0.8	3.7	W.
Fall mean.....	55	69		41				8.2	20	5.3	9.7	0.8		W.
Annual mean.....	54	67	97	41	-26			50.5	120	41.2	58.1	20.8	8.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 28, 29, 31.....	None.	1899	Feb. 1, 9, 12-15; Dec. 30, 31.	July 15; Aug. 3; Sept. 5-7.
1895	Jan. 1, 12, 13; Feb. 7-10, 13, 14.	June 3.	1900	Jan. 2, 3.....	Aug. 11.
1896	Feb. 20, 21.....	None.	1901	Dec. 21.....	July 23, 24.
1897	Jan. 28-30.....	None.	1902	Feb. 19.....	None.
1898	Feb. 2, 3; Dec. 15.....	June 10; July 2, 3.	1903	None.....	None.

VIRGINIA.

The Great Valley: WYTHE COUNTY. Station: WYTHEVILLE.

PEYTON GREEN, Observer.

[Established by Weather Bureau, 1891. Latitude, 36° 56' N. Longitude, 81° 05' W. Elevation, 2,370 feet.]

This station is in the central portion of Wythe County. It lies on the southwest slope of an elevated valley through which runs Reed Creek. The surroundings are rugged in character, the nearby mountain tops being from 1,000 to 1,500 feet above the station and from 3,300 to 3,800 feet above sea level. The Lick Mountains lie 1 mile southeast and the Walker Mountains 6 miles northwest of the station.

The instrumental equipment consists of a maximum and minimum thermometer and a rain gage. Of these, the thermometers are exposed in a shelter of standard cotton region pattern; the shelter stands in an inclosed yard and is free from disturbing influences. The instruments are 5 feet above the ground. The rain gage, which is 10 feet east of the shelter, occupies a good position. There are no trees or buildings near enough to affect the exposure. The top of the gage is 3 feet above the ground.

Temperature means are determined from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		W.		
												Average depth.	Greatest depth in 24 hours.			W.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.			
December.....	35	44	68	25	- 5	38	29	2.9	8	2.0	7.6	3.0	6.0	W.		
January.....	32	41	66	24	- 11	37	23	2.3	9	2.0	2.4	8.6	13.3	W.		
February.....	33	43	70	24	- 9	38	24	3.9	9	2.6	1.0	6.8	10.0	W. N.W.		
Winter mean.....	33	43		24				9.1	26	6.6	11.0	18.4		W.		
March.....	44	55	79	34	3	49	38	3.9	10	1.8	3.7	2.5	8.0	W.		
April.....	52	63	87	40	19	58	47	3.4	10	1.6	9.1	1.2	6.0	W.		
May.....	62	75	91	50	32	67	57	4.2	10	2.3	9.0	T.	T.	W.		
Spring mean.....	53	64		41				11.5	30	5.7	21.8	3.7		W.		
June.....	69	80	93	57	41	71	64	4.5	12	3.3	7.8	0.0	0.0	W.		
July.....	73	84	96	61	46	75	70	4.1	11	6.8	3.7	0.0	0.0	W.		
August.....	72	83	97	60	46	76	68	5.0	10	3.0	13.2	0.0	0.0	W.		
Summer mean.....	71	82		59				13.6	33	13.1	24.6	0.0		W.		
September.....	65	78	97	53	33	70	62	3.0	7	0.9	2.3	0.0	0.0	W.		
October.....	55	67	86	42	13	59	48	3.0	6	3.2	1.9	T.	T.	W.		
November.....	43	54	80	32	13	51	38	1.7	8	2.1	1.0	1.2	2.5	W.		
Fall mean.....	54	66		42				7.7	21	6.2	5.2	1.2		W.		
Annual mean.....	53	64	97	42	-11			41.9	110	31.6	62.6	23.3	13.3	W.		

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 28, 29.....	None.	1900	None.....	July 16, 18; Aug. 7, 8, 10-12, 15; Sept. 10.
1895	Jan. 12, 13; Feb. 5, 6, 9.	Do.	1901	Dec. 21.....	July 23, 24.
1896	Feb. 20, 21.....	Do.	1902	None.....	None.
1897	Jan. 28, 29.....	Do.	1903	Dec. 1.....	Do.
1898	Feb. 3.....	July 2.			
1899	Feb. 1, 10, 13, 14; Dec. 30.	Sept. 6.			

VIRGINIA.

The Great Valley: MONTGOMERY COUNTY. Station: BLACKSBURG.

Prof. W. B. ALWOOD, Observer.

[Established by Weather Bureau, July, 1891. Latitude, 37° 14' N Longitude, 80° 25' W Elevation, 1,170 feet.]

Blacksburg is situated in the north-central part of Montgomery County. The station is located at the Virginia Polytechnic Institute, one-fourth of a mile northwest of the village. The general surroundings are rolling, the land rising on the east to the tops of the adjoining mountains, 300 to 400 feet above the station, and falling on the west for a distance of about 8 miles to the valley of the New River. The plateau on which the station is located sheds water to both the Atlantic Ocean and the Mississippi River.

The instrumental equipment consists of a maximum and minimum thermometer and a rain gage. The thermometers are exposed in a cotton region shelter supplied by the Weather Bureau. This shelter is 75 feet northwest of the office building, which is 20 feet high, and the instruments are 5 feet above the sod. The rain gage is set up on an open lawn in a regular box support, which is sunk into the ground until the top of the gage is 4 inches above the sod. The nearest building is 50 feet to the northwest and 25 feet high. There are no trees near the gage.

Temperature means are determined from the daily extremes.

MONTHLY, SEASONAL, AND YEARLY MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	46	73	23	- 3	37	28	2.9	7	2.8	7.5	3.0	5.0	NW
January.....	32	42	74	21	-13	37	23	2.8	8	1.7	2.8	5.4	11.0	W, NW
February.....	32	42	70	22	-12	38	21	3.5	8	3.4	0.7	6.1	6.5	W, SW
Winter mean.....	33	43		22				9.2	23	7.9	11.0	14.5		NW
March.....	43	54	82	32	- 2	47	38	3.7	10	1.0	3.4	4.1	7.0	S.W.
April.....	50	62	87	38	17	58	45	2.6	9	1.2	5.9	1.0	4.5	W.
May.....	60	74	90	48	30	64	54	4.1	11	2.9	6.7	0.1	1.0	W.
Spring mean.....	51	63		39				10.4	30	5.1	16.0	5.2		W.
June.....	68	80	94	56	38	70	64	4.1	12	2.0	6.3	0.0	0.0	W.
July.....	72	83	95	59	42	75	68	4.5	11	3.5	4.5	0.0	0.0	W.
August.....	70	82	96	59	41	73	68	3.9	9	2.0	10.5	0.0	0.0	W.
Summer mean.....	70	82		58				12.5	32	7.5	21.3	0.0		W.
September.....	64	78	96	51	29	68	62	2.8	6	1.8	2.6	0.0	0.0	W.
October.....	53	67	86	39	14	57	47	2.6	5	2.8	1.0	0.0	0.0	W.
November.....	43	56	79	29	8	49	36	1.9	6	0.8	1.0	0.9	2.0	W.
Fall mean.....	53	67		40				7.3	17	5.4	4.6	0.9		W.
Annual mean.....	52	64	96	40	-13			39.4	102	25.9	52.9	20.6	11.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 27.....	June 29.	1899	Feb. 1, 9-11, 13, 14; Dec. 31.	None.
1895	Jan. 12, 13; Feb. 3, 6-9, 15.	None.	1900	Feb. 1; Mar. 17, 18...	Aug. 10, 11; Sept. 3, 10.
1896	Feb. 20, 21.....	Do.	1901	Dec. 16.....	None.
1897	Jan. 28, 30.....	Do.	1902	None.....	July 17.
1898	Feb. 3, 7.....	Do.	1903	Feb. 19.....	None.

VIRGINIA.

Middle Virginia: CAMPBELL COUNTY. Station: LYNCHBURG, VA.

G. N. WILSON, Observer.

[Established by Signal Service in May, 1871. Latitude, 37° 25' N. Longitude, 79° 9' W. Elevation, 614 feet.]

The present location of the station is in the Law Building, at 807 Main street, which is about one-quarter of a mile north-east of the center of the city. Since the establishment of the station in 1871 the different buildings occupied by the Signal Service and Weather Bureau have been as follows: May 24, 1871, Eleventh and Main streets; June 2, 1871, Eighth and Court streets; September 1, 1873, 135 Main street; May 1, 1888, Virginian Building; April 1, 1890, Law Building.

The thermometers are exposed in a regulation instrument shelter on the roof of the Law Building. The height of the thermometers above ground is 83 feet, and the rain gage, which is 10 feet north of the instrument shelter, is 77 feet above the ground. The anemometer cups are 88 feet above ground. Humidity data are for fifteen years' record. Remainder of data is from full period of observation, thirty-three years, May 24, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p.m.	Absolute, 8 p.m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	40	48	73	31	- 5	51	31	3.1	9	6.2	0.5	2.5	7.9	75	1.77	70	2.07	NW.	
January.....	37	45	77	28	- 6	47	27	3.8	11	4.5	5.3	5.7	9.0	71	1.54	71	1.81	SW. ^a	
February.....	39	48	74	30	- 3	47	31	3.8	10	2.4	3.1	4.3	12.0	74	1.71	65	1.78	NW.	
Winter mean.....	39	47	.....	30	.....	.....	.....	10.7	30	13.1	8.9	12.5	.....	73	1.67	69	1.89	NW.
March.....	46	56	86	37	14	54	39	4.0	11	2.6	2.4	3.3	7.3	71	2.10	63	2.39	NW.	
April.....	56	66	95	45	25	61	51	3.2	10	2.1	3.1	0.3	4.0	68	2.87	64	3.47	NW.	
May.....	66	77	97	55	34	71	62	4.0	11	2.2	7.1	0.0	0.0	72	4.42	69	5.33	NE.	
Spring mean.....	56	66	.....	46	.....	.....	.....	11.2	32	6.9	12.6	3.6	.....	70	3.13	65	3.73	NW.
June.....	74	84	98	64	45	77	69	3.7	12	1.7	3.8	0.0	0.0	74	5.90	74	6.92	SW.	
July.....	78	88	102	68	53	82	73	4.1	11	3.9	10.9	0.0	0.0	75	6.59	73	7.27	SW.	
August.....	77	85	100	69	47	81	72	4.2	12	0.3	3.8	0.0	0.0	80	6.59	77	7.34	NE.	
Summer mean.....	76	86	.....	67	.....	.....	.....	12.0	35	5.9	18.5	0.0	.....	76	6.36	75	7.18	SW.
September.....	69	79	99	60	35	79	62	3.8	9	2.1	10.7	0.0	0.0	80	5.25	77	6.14	NE.	
October.....	58	68	92	48	28	65	54	3.4	7	4.1	4.9	0.0	0.0	80	3.38	76	3.94	NW. ^b	
November.....	47	57	81	40	13	54	41	2.9	8	3.6	4.9	0.6	4.5	77	2.28	71	2.70	SW.	
Fall mean.....	58	68	.....	49	.....	.....	.....	10.1	24	9.8	20.5	0.6	.....	79	3.64	75	4.26	SW.
Annual mean.....	57	67	102	48	- 6	.....	.....	44.0	121	35.7	60.5	16.7	12.0	75	3.70	71	4.26	NW.

^a Also NW.^b Also S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 29.....	June 22-24, 29; July 13; Aug. 9.	1899	Jan. 2; Feb. 8-15; Dec. 30, 31.	June 7, 8; July 16; Aug. 3-5, 20, 21; Sept. 6.
1895	Jan. 13; Feb. 3, 6-9.....	May 30, 31; June 1-4; July 18-21; Aug. 10, 11, 28, 29; Sept. 12, 19-23.	1900	Feb. 1.....	July 4, 6, 7, 16-21; Aug. 7-13, 15-17, 19, 26, 27; Sept. 7, 9-11.
1896	Feb. 18, 20, 21.....	April 18-July 27-29; Aug. 5-7, 9-13; Sept. 18.	1901	Dec. 21, 22.....	June 30; July 1, 23, 25, 26, 29, 30.
1897	Jan. 28, 30, 31.....	June 16; Sept. 7-11, 13, 14, 16.	1902	None.....	June 12, 13; July 3-6, 9, 17-19.
1898	Feb. 4.....	July 1-4, 17; Aug. 23.	1903	Feb. 19.....	July 3, 4, 10, 11; Aug. 25, 28.

VIRGINIA.

Tidewater Virginia: SURRY COUNTY. Station: SPOTTSVILLE.

B. W. JONES, Observer.

[Established by Weather Bureau, October, 1891. Latitude, 37° 03' N. Longitude, 76° 56' W. Elevation, 50 feet.]

This station is 1½ miles southeast of the village of Spottsville. The country round about is level and well wooded, with elevations ranging from 20 to 50 feet, approximately, above sea level.

A maximum and minimum thermometer and a rain gage comprise the instrumental equipment. Of these the thermometers are exposed in a cotton-region shelter supplied by the Weather Bureau. This shelter is erected 8 feet north of the observer's dwelling; the instruments are 6 feet above the sod.

The rain gage stands 52 feet west of the shelter in an open grassy yard with no trees near by, and no buildings nearer than the dwelling which is 60 feet to the east and 25 feet high. The exposure gives good results. The top of the rain gage is 3 feet above the ground.

The mean temperatures are calculated from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY, 1893, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 40	° F. 52	° F. 74	° F. 30	° F. 0	° F. 43	° F. 36	In. 3.2	8	In. 2.7	In. 4.6	In. 2.1	In. 12.0	SW.
January.....	37	47	76	27	-15	42	26	2.8	9	2.2	2.9	3.9	7.0	SW.
February.....	39	48	71	27	-6	44	34	4.6	9	4.1	6.2	6.6	10.0	SW.
Winter mean.....	39	49	.....	28	.....	.....	.....	10.6	26	9.0	13.7	12.6	.....	SW.
March.....	41	59	88	38	10	54	40	4.6	10	5.0	4.0	1.8	4.0	SW.
April.....	58	66	96	44	25	60	52	3.8	8	3.1	1.6	0.3	4.0	SW.
May.....	67	76	97	55	35	71	63	4.3	11	3.8	6.0	0.0	0.0	SW.
Spring mean.....	55	67	.....	46	.....	.....	.....	12.7	29	11.9	11.6	2.1	.....	SW.
June.....	74	86	100	62	42	77	73	3.5	9	3.3	3.0	0.0	0.0	SW.
July.....	78	90	101	67	50	81	75	5.6	10	3.5	5.7	0.0	0.0	SW.
August.....	77	87	100	66	49	81	73	5.2	10	4.1	5.0	0.0	0.0	SW.
Summer mean.....	76	88	.....	65	.....	.....	.....	14.3	29	10.9	13.7	0.0	.....	SW.
September.....	70	82	101	60	37	75	68	4.2	7	1.7	4.9	0.0	0.0	NE.
October.....	59	70	90	47	26	64	52	4.3	7	4.9	6.7	0.2	2.0	NE.
November.....	49	60	80	38	16	56	45	2.7	7	3.5	6.5	0.2	1.0	SW.
Fall mean.....	59	71	.....	48	.....	.....	.....	11.2	21	10.1	18.1	0.4	.....	NE.
Annual mean.....	58	69	101	47	-15	.....	.....	48.8	105	41.9	57.1	15.1	12.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 10, 29.....	May 18, June 12, 23, 24, 29; July 13, 14, 28, 29.	1899	Jan. 2, 29; Feb. 9-15; Dec. 29-31.	June 6, 9, 15, 24, 25; July 6, 13, 16, 17, 30, 21; Aug. 4, 5, 11, 21; Sept. 6.
1895	Feb. 6-9, 11, 14, 15....	May 30, 31; June 1-5, 21, 25, 26; July 18, 20; Aug. 10-12, 29; Sept. 19-23.	1900	Jan. 2, 3; Feb. 2, 18...	May 15, 16; June 12, 27, 29; July 4-8, 15-21, 25. Aug. 7-16, 18, 20, 25-27, Sept. 7-13.
1896	Jan. 6; Feb. 21, 22; Dec. 4.	July 15, 28-30; Aug. 5-13; Sept. 18.	1901	Feb. 24, 25; Mar. 6, 7; Dec. 22.	June 30; July 1, 6, 22, 26, 29, 31
1897	Jan. 26, 29.....	June 16, 25, 30; July 3, 12, 26; Aug. 4, 30; Sept. 11.	1902	Feb. 20.....	June 12, 13, 29; July 3-6, 8-10, 17, 20; Aug. 4, 11.
1898	Feb. 2.....	June 11-13, 25-28; July 1-4; Aug. 10.	1903	None.....	July 2, 3, 9, 11, 26, 30; Aug. 24-26.

VIRGINIA.

Tidewater Virginia: ELIZABETH CITY COUNTY. Station: HAMPTON.

Prof. C. L. GOODRICH, Observer.

[Established by Weather Bureau March, 1893. Latitude, 37° 1' N. Longitude, 76° 24' W. Elevation, 5 feet.]

Hampton is located in the south-central part of Elizabeth City County, and the point at which observations are taken is situated at the Normal and Agricultural Institute in the southeast suburbs of the town. The surrounding country is low and flat.

A maximum and minimum thermometer and a rain gage constitute the instrumental equipment. Of these the thermometers are exposed in a cotton region shelter supplied by the Weather Bureau. The shelter stands on a grassy lawn 70 feet southwest of one of the main institute buildings, which is 60 feet high and about 40 feet from the water front. The instruments are 5 feet 9 inches above the sod. The rain gage is set up 114 feet west of the above-mentioned building in an open space on the lawn near the water's edge. The nearest tree is 25 feet high and 75 feet to the east.

The mean temperatures are calculated from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	42	50	69	36	12	45	36	2.7	8	3.2	4.0	1.3	8.0	SW.	
January.....	40	47	70	34	13	44	37	2.6	9	2.3	1.8	1.4	6.0	NE.	
February.....	39	47	70	32	4	44	32	4.0	9	5.6	4.8	4.3	10.0	SW.	
Winter mean.....	40	48		34				9.3	26	11.1	10.6	7.0		SW.	
March.....	49	57	83	41	17	54	45	3.7	9	1.5	1.6	0.8	4.5	SW.	
April.....	56	64	88	48	30	59	52	3.4	9	2.0	1.4	0.1	1.0	NE.	
May.....	67	75	96	59	42	71	63	4.3	11	2.8	7.1	0.0	0.0	{ NE SW	
Spring mean.....	57	65		49				11.4	29	6.3	10.1	0.9		{ NE SW	
June.....	74	83	96	68	49	77	70	3.7	9	1.7	7.2	0.0	0.0	SW.	
July.....	79	86	98	72	60	81	77	5.7	11	6.2	10.8	0.0	0.0	SW.	
August.....	79	85	96	72	60	82	75	4.4	8	2.7	2.1	0.0	0.0	SW.	
Summer mean.....	77	85		71				13.8	28	10.6	20.1	0.0		SW.	
September.....	73	79	96	66	47	76	71	3.2	6	4.7	6.2	0.0	0.0	NE.	
October.....	62	69	84	56	34	66	58	3.9	7	2.4	1.9	0.0	0.0	NE.	
November.....	52	59	78	45	21	57	46	2.6	7	2.8	2.2	0.1	0.5	SW.	
Fall mean.....	62	69		56				9.7	20	9.9	10.3	0.1		NE.	
Annual mean.....	59	67	98	52	4			44.2	103	37.9	51.1	8.0	10.0	NE.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Feb. 5, 24, 25; Dec. 29, 30.	June 24.	1900	Jan. 2; Feb. 1, 2, 18-20, 25-27; Dec. 17.	Aug. 7, 8, 11.
1895	Jan. 1, 13, 14; Feb. 5-11, 13-15; Dec. 6.	May 31; June 1-3; Sept. 19, 21, 23.	1901	Jan. 20; Feb. 13, 14, 23, 24; Mar. 6, 7; Dec. 16, 17, 21, 22.	July 1, 2, 4, 6, 30.
1896	Jan. 4-6, 8; Feb. 17, 18, 21, 22; Dec. 24, 25.	Aug. 9, 11, 13.	1902	Jan. 4-6, 12-14; Feb. 5, 6, 9-11, 13, 14; Mar. 19; Dec. 27, 28.	July 5, 6, 9, 16, 19, 20.
1897	Jan. 25, 26, 28-31; Dec. 25.	None.	1903	Jan. 9, 13, 14, 19; Feb. 18-20; Nov. 27, 28; Dec. 16, 18, 27.	Aug. 25, 26.
1898	Jan. 2; Feb. 2, 3; Dec. 14.	July 6.			
1899	Jan. 1, 2, 29; Feb. 1, 2, 9-15; Mar. 7; Dec. 29-31.	June 7, 8; Sept. 6.			

VIRGINIA.

Tidewater Virginia: NORFOLK COUNTY. Station: NORFOLK.

JAMES J. GRAY, Local Forecaster.

[Established by Signal Service, U. S. A., November, 1870. Latitude, 36° 51' N. Longitude, 76° 17' W. Elevation, 13 feet.]

This station is located in the Citizens' Bank Building, No. 191 to 195 Main street. The office is on the seventh floor of the building and the outside instruments are displayed on the roof of the building. The exposures of the instruments are in accordance with United States Weather Bureau rules. The instrument shelter and station equipment are of the latest Weather Bureau pattern.

Norfolk is situated on the Elizabeth River, a tributary of Hampton Roads, and is about 4 miles from its mouth. The country is generally very level.

The elevations of the instruments above ground are: thermometers, 102 feet; top of rain gage, 96 feet; anemometer cups, 111 feet.

The sunshine data are for 4 years; humidity, 15 years. Remainder of tabulated data is from the full period of observation, thirty-three years—January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	43	51	75	36	6	50	33	3.4	10	2.3	0.8	2.7	17.7	80	2.28	72	2.37	147	47	N.
January.....	41	48	80	33	6	51	30	3.4	12	3.3	4.9	2.0	9.8	81	2.06	74	2.27	153	50	N.
February.....	43	51	81	34	2	52	32	3.8	11	2.8	4.2	3.8	7.9	80	2.20	74	2.27	181	60	N.
Winter mean.....	42	50	.....	34	.....	.....	.....	10.6	33	8.4	9.9	8.5	.....	80	2.18	73	2.30	160	52	N.
March.....	48	57	88	39	14	55	41	4.6	12	4.3	7.6	0.4	3.6	80	2.64	75	2.85	195	52	N.E.
April.....	56	65	95	47	24	66	50	3.9	11	2.2	11.9	0.0	T.	78	3.53	73	3.66	208	53	N.E.
May.....	67	75	98	57	38	73	63	4.3	12	2.5	4.6	0.0	0.0	80	5.25	76	5.15	209	48	S.
Spring mean.....	57	66	.....	48	.....	.....	.....	12.8	35	9.0	24.1	0.4	.....	79	3.81	75	3.89	204	51	N.E.
June.....	74	83	102	66	49	79	71	4.1	10	2.6	4.8	0.0	0.0	81	6.89	78	6.85	219	50	SW.
July.....	79	88	102	71	57	82	74	5.9	13	3.9	10.7	0.0	0.0	82	7.92	74	7.37	263	59	SW.
August.....	77	85	100	70	56	82	73	5.9	12	7.7	5.9	0.0	0.0	84	7.62	81	7.82	244	59	N.E.
Summer mean.....	77	85	.....	69	.....	.....	.....	15.9	35	14.2	21.4	0.0	.....	82	7.48	78	7.35	243	56	SW.
September.....	71	79	100	65	40	78	68	4.2	9	3.8	5.4	0.0	0.0	82	6.54	78	6.43	207	56	N.E.
October.....	61	69	89	54	31	67	55	3.6	9	0.2	7.6	0.0	0.0	83	4.46	76	4.37	190	55	N.E.
November.....	51	59	80	44	18	57	46	2.9	9	0.4	2.6	0.5	6.7	82	3.12	73	3.08	169	55	N.
Fall mean.....	61	69	.....	54	.....	.....	.....	10.7	27	4.4	15.6	0.5	.....	82	4.71	76	4.63	189	55	N.E.
Annual mean.....	59	68	102	51	2	.....	.....	50.0	130	36.0	71.0	9.4	17.7	81	4.54	75	4.54	199	54	N.E.

a Also NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Feb. 25; Dec. 2, 8, 29, 30.	June 23, 24.	1900	Jan. 1-3, 27, 30, 31; Feb. 1, 2, 18, 19, 25-27; Mar. 12.	July 4-8, 16, 18, 21; Aug. 7, 10-13, 16, 26, 27; Sept. 10, 11.
1895	Jan. 1, 13, 14; Feb. 5-14.	May 31; June 1-4; July 18; Aug. 11, 12; Sept. 19-23.	1901	Jan. 20; Feb. 1, 13, 23-25; Mar. 6, 7; Nov. 29; Dec. 15, 16, 20-22.	June 20; July 1, 2, 6, 25, 29, 30.
1896	Jan. 4-7; Feb. 1, 18, 20-22; Dec. 24-26.	Apr. 18; July 28-30; Aug. 7, 9-13; Sept. 8.	1902	Jan. 4, 5; Feb. 5, 6, 9, 14; Mar. 19; Dec. 27, 28.	July 5, 10, 18-20; Aug. 3, 4, 11.
1897	Jan. 25, 26, 28-30; Dec. 24.	June 16, 30; Sept. 11.	1903	Jan. 9, 13, 19; Feb. 17-20; Dec. 26, 27.	July 3, 26; Aug. 24, 25.
1898	Jan. 2; Feb. 1-4; Dec. 10, 14, 15.	June 12, 26-28; July 2.			
1899	Jan. 1, 2, 29; Feb. 1, 2, 9-15; Mar. 7; Dec. 27, 29-31.	June 7, 8, 15; July 16, 30; Aug. 5, 21; Sept. 6.			

NORTH CAROLINA.

By CHARLES F. VON HERRMANN,
Section Director.

CLIMATE OF NORTH CAROLINA.

General physiographic features.—North Carolina is bounded on the east by the Atlantic Ocean, on the south by South Carolina and Georgia, on the west by Tennessee, and on the north by Virginia. It lies between the parallels of 33° 50' and 36° 30' north latitude, and the meridians of 76° and 84° 42' west longitude, and extends from sea level to the crest of the Great Smoky Mountains, a distance east to west of 503 miles. The greatest width is 189 miles; its area, including water surface, 52,285 square miles. The topography of the State is extremely diversified. It includes in its area the grandest portion of the Appalachian Mountain system, which culminates in Mount Mitchell, the loftiest peak east of the Rocky Mountains. Its unique system of river basins carry the waters of the State east and south into the Atlantic Ocean, west into the Tennessee River, and north into the Ohio.

For convenience of treatment the State has been divided into climatic districts, which correspond roughly with its three natural geological subdivisions, the Coastal Plain, the Piedmont Plateau, and the Mountain region. Each region exerts a different influence upon the climatic factors, and has in some respects climatic features peculiarly its own.

The eastern district, or Coastal Plain.—The eastern district, embracing the larger portion of the Coastal Plain, contains 34 counties, and extends from the coast inland about 150 miles. This region has been built up of unconsolidated sands, gravels, loams, clay, and marl of recent geologic age, and has been but slightly elevated above sea-level. The surface is level, little affected by erosion, and is poorly drained. It contains within its area all the swamp lands, lakes, sounds, and bays in the State, which, penetrating into the land, form an important factor, modifying the climate of the eastern district. The sounds are separated from the Atlantic Ocean throughout the entire coast line of nearly 300 miles by narrow sandy bars, called "banks," with narrow connecting inlets; the banks protect the inland waters from the chief fury of storms on the Atlantic. The swamp lands are of considerable extent and consist of peat bogs covered with stunted growths of trees and shrubs. The network of loose soil, sand, and decayed vegetation retains large quantities of water, but when drained the land is often found to be of great fertility. The largest sounds are Pamlico and Albemarle, neither of very great depth. Four of the largest rivers, navigable for from 40 to 80 miles from their points of entry to the sounds or the sea, flow in tortuous courses through the eastern district. These are the Roanoke on the north, entering Albemarle Sound, the Tar and Neuse rivers entering Pamlico Sound, and on the south the Cape Fear which flows directly into the Atlantic.

The interior of the Coastal Plain is more rolling with upland soils consisting of moderately fine loamy sands, rarely of stiff clay. North of the Neuse loams are more frequent; to the south the areas of sand become very considerable and of great depth, greatly influencing the drainage of waters to the sea. A large portion of the region is covered with pine forests. The western boundary of the Coastal Plain is formed by the sloping rocky surface of the hill country or eastern margin of the Piedmont Plateau, a clearly distinguished boundary known as the "fall line." Here is found an outcrop of hard crystalline schists more difficult to erode than the strata on either side, through which the rivers flow in rapids or narrow gorges to reach the lower level of the plain. The fall line extends from Weldon to Rocky Mount on the Tar River, thence to Averagesboro (north of Fayetteville) on the Cape Fear. Along the western border of the Coastal Plain the land becomes more hilly, ridges rising to elevations of 300 feet or more. In general, the meteorological stations of the eastern district have with few exceptions elevations of less than 200 feet above sea level.

The central district, or Piedmont Plateau.—The central district lies between the Coastal Plain and the mountain region, and includes 27 counties; the dividing line on the west extends approximately from a little east of Charlotte north to Mount Airy. The Piedmont Plateau averages 125 miles in width: its eastern half has an average elevation of 400 to 500 feet; the western, 1,200 feet. The characteristic features of this region are the moderately hilly nature of the country, the presence of hard crystalline rocks, and a reddish soil which can be found from the fall line to the west. Geologically this section is a much older and more complex region, which has been elevated considerably above sea level, and has then been reduced to a base-level plain by erosion and weathering. The soils have been mostly formed by the decay of rocks, and are gravelly sandy loams or clayey shallow soils. The forests are composed mostly of deciduous trees interspersed with pines.

The drainage of the greater portion of this region is southeast, with an approximate fall of 3 feet to the mile. The western portion is drained by the Yadkin and Catawba, which reach the sea through South Carolina; the waters of the central portion are carried to the sea by the Cape Fear, and the headwaters of the Tar, Neuse, and Roanoke. In the northern tier of counties from Stokes to Warren the streams flow northward into the Dan, which, with its continuation, the Roanoke, is the longest river of the State, with a total length of 300 miles. The Dan makes a northward bend into Virginia about the middle of its course. The watershed between the streams flowing north and south is formed by an elevated ridge extending eastward from the Blue Ridge through Stokes, Rockingham, Caswell, and Person counties, with some heights of 1,000 feet in elevation. The observing stations in the central district have elevations of from 200 to 1,000 feet above sea level.

The western district, or mountain region.—Geologically the Appalachian Mountain system in North Carolina embraces an irregular mountain table-land, lying between the well-defined escarpment of the Blue Ridge on the southeast, and the northwestern slope of the Great Smoky Mountains which form the boundary line between North Carolina and Tennessee, but as a climatic subdivision it is made to include the counties immediately east of the Blue Ridge in which the meteorological stations have usually an elevation of over 1,000 feet. This is preeminently a region of mountain and valley, except in the

southern portion; the mountains are not rugged in character, but of softened outline, presenting few precipitous slopes. Taken as a whole, it has an average elevation of 2,700 feet above sea level, while there are more than forty mountain peaks with elevations of 6,000 feet or more. The highest mountain of North Carolina, Mount Mitchell, is 123 feet higher than Mount Washington. The mountain slopes are steep, generally clothed with forests, and when cleared are found to possess a fertile soil.

The Appalachians divide into two diverging chains in southwestern Virginia. One continues its original course forming the western boundary of North Carolina and receiving various names as Iron Mountains, Bald Mountains, Great Smoky, and Unaka Mountains; while the other chain, retaining the name Blue Ridge, bends south, crosses the State farther east and is generally more fragmentary. Nevertheless the Blue Ridge forms the great divide between the waters flowing into the Atlantic Ocean and those entering the Gulf through the Mississippi. The streams which have their sources on the western slopes of the Blue Ridge flow northwest into the tributaries of the Tennessee after breaking through the western mountain barrier in deep and rugged gorges.

Attention must be invited to the fact that in the mountain region of western North Carolina there are many inclosed valleys of considerable extent in which climatic conditions are greatly modified not only by the general elevation of the base plain, but also by peculiarities of position, whether open to the north or south, and by the general direction of the mountains near them. Numerous cross chains, uniting the main mountain ranges, form basins which contain rivers flowing through fertile and picturesque valleys. Beginning on the south, the eastward prolongation of the Unaka Mountains separates the valley of the Hiwassee (chief city, Murphy) from the valley of the Tennessee. Between the Tennessee (chief city, Bryson) and Big Pigeon River (Waynesville) lie the Balsam Mountains with peaks over 6,000 feet. The largest of these valleys, that of the French Broad (50 miles long by 10 to 25 miles wide) lies between Pisgah Mountains on the southwest and the Black Mountains on the northeast. Its chief city is Asheville, the climate of which is distinctly influenced by the larger extent of the valley in a northwestern direction. The more northern valleys are much smaller. The last occupying Ashe, Alleghany, and Watauga counties, is drained by the New River which flows northward through Virginia into the Ohio. East of the Blue Ridge also there are projecting chains into the Piedmont Plateau which separate the headwaters of the Yadkin, Catawba, and Broad rivers, where the valleys are open to the lower plains of the middle region.

In regard to the geological structure of the Appalachian Mountain system, Professor Kerr states: "There can be no doubt that here was once a lofty plateau, higher than the highest summit of the Black, and comparable in elevation to the present great table-land on the western side of the continent, between the Rockies and the Sierra Nevada. The destructive action of atmospheric agents, chemical and mechanical—water, frost, oxygen, and carbonic acid—have, by their incessant play through the uncounted centuries, disintegrated and worn away the vast mass, until it is but a skeleton of what it was, transporting the ruins successively to lower levels and finally to the sea. Of course in this process the softer rocks, as shales, limestones, and certain micaceous slate, would suffer a greater amount of abrasion than the harder masses, such as the silicious and hornblende slates, schists, and gneisses. Hence the present mountain chains are composed of the latter, while the rivers have scooped out their valleys through tracts occupied by the former."^a

Influences modifying the climate of North Carolina.—The climate of any region of the earth's surface is controlled by certain factors which may be divided into two classes, general and specific. The general factors which are independent of topographic features are (1) latitude, for primarily the chief climatic element—temperature—depends on the altitude of the sun by which the duration and intensity of insolation is fixed, and this is determined by the latitude of the place; and (2) the climatic location or position of the region with reference to the permanent areas of high and low pressure, and the consequent relation to the paths of movement of the individual high and low pressure areas. The specific factors controlling climate are such as are peculiar to the region in question, namely the influence exerted by (1) topographical features, which may be entirely different for different regions, and (2) geographical position with reference to large masses of water or to mountain ranges. The topography of North Carolina is so varied and the modification it exerts on the climate of the State so great as to make its influence the predominating factor. All these modifying causes act together in a very complicated manner so that it will only be possible in this sketch to discuss their effect in a brief and general way.

Turning to the effect of the position of North Carolina with reference to the permanent areas of high and low pressure, it is necessary to remember that there is a permanent area of high barometer in the south Atlantic Ocean, which increases in depth and extent during summer, while at the same time there is a deficiency in pressure over the heated interior of the continent. In winter there is a strongly marked continental area of high pressure. The effect of the latter is felt in North Carolina in the prevailing westerly winds of winter which bring masses of cold air over the State from the continental interior; but cold waves reach this region in a much modified form, owing to the barrier interposed by the mountains, which is often so effective that the cold air is forced to flow around the southern end of the Appalachians and so reaches the State from the southwest. This is sometimes the case even with severe cold waves, as during that of February 13 and 14, 1899.

While not so easy to trace, the effect of the Atlantic permanent anticyclone is equally important. It is probable that most of the heat waves affecting the south Atlantic States are due to a sluggish circulation of the atmosphere, caused by the encroachment of the Atlantic high area in summer. The air near the equator, heated by the tropical sun, rises and flows northward to about latitude 30° north, where it forms a permanent area of high pressure in which the warmed air slowly descends to the earth's surface. In summer the western portion of this high area covers the southeastern United States sometimes for long periods of time. As the air slowly falls toward the surface not only does it retain much of its original heat gained in the Tropics but it is also warmed dynamically by the compression it undergoes at lower levels. The warmed air settles over the Gulf and the Atlantic States and keeps the temperature very high until the stagnation of the air is removed

^a Kerr's *Geology of North Carolina*, 1875, Vol. I, page 28, quoted in the *Annual Report of the N. C. State Weather Service*, 1891. See also *Bulletin No. 8, Papers on Waterpowers in N. C.*, J. A. Holmes, 1899, pages 19 to 25.

by the passage of some storm. Such heat waves are of frequent occurrence in North Carolina, but probably the most remarkable ever felt was that which prevailed unbroken from August 5 to September 10, 1900, making the month of August of that year the warmest on record. Heat waves in North Carolina are also frequently due to the continued reformation of slowly moving areas of low barometer in the central valley or far west which cause a persistent drift of air from the warmer regions of the south, occurring with a hazy sky favorable for the penetration of the bright rays of the sun, but unfavorable for the radiation of dark heat from the earth's surface at night, resulting in an accumulation of heat.

The other two great factors differentiating the climate of the three natural divisions of North Carolina are: (1) The influence of the Atlantic Ocean on the east, increased by its penetration into the land as sounds and bays; and (2) the elevated mountain system in the west. As already described, North Carolina is a vast plain rising from sea level to the crest of the Appalachian chain at its highest portion.

(1) The effect of large masses of water upon the climate of the eastern district is to modify the extremes of temperature and to increase the rainfall. The effect upon temperature is entirely due to the great specific heat of water (the highest of any substance known). Large masses of water are but slowly heated, and likewise cool very slowly, when once warmed storing up the heat received. The air over a water surface can not become so warm in summer as over a land surface nor fall as low in winter. The effect of the storage of heat by the bodies of water in the eastern section is quite pronounced upon the temperature conditions at coast stations, and results in greatly increasing the winter mean temperature and moderately lessening the summer mean. The extremes of absolute temperature are also diminished. Numerically the effect may be illustrated by the smaller annual range of mean temperatures (difference between the monthly means of the coldest and warmest months) at coast stations and interior points. At Southport the annual range is 33.6°; at Wilmington, 32.9°; Hatteras, 32.6°. The range increases in the interior to 37.7° at Raleigh, 40.5° at Roxboro, and 41.6° at Oxford; farther west there is a diminution of range, due, however, to the effect of elevation. The smaller range between the mean of the maximum and the mean of the minimum at coast stations is almost entirely due to the elevation of the winter temperatures. The mean maximum temperature at Hatteras is 67°, mean minimum 57°, giving a range of only 10°. The range at Wilmington is: Mean maximum, 72°; mean minimum, 57°; difference, 17°. At Southport it is 15°. The range increases rapidly toward the interior to 25 at Tarboro and 26 at Soapstone Mount.

It is often stated that the almost marine climate of the coast region of North Carolina is due to the influence of the Gulf Stream, but quite incorrectly. It is not probable that the Gulf Stream has any effect whatever upon the climate of eastern North Carolina. The reasons are simply that the prevailing winds in this region are westerly and carry the warm, moist air over the Gulf Stream away from the land, not toward it; southeast to east winds are comparatively rare in North Carolina and are seldom of long duration. Moreover, although the temperature of the Gulf Stream is about 14° higher than the normal temperature of the sea at the latitude of Hatteras, this can have no effect upon the land, from which it is separated by cold shore currents which on some charts are represented as extending from Newfoundland nearly to Florida. It may be conceded, however, that the Gulf Stream as a source of warmth and moisture may modify the course of subtropical storms, which, originating in the West Indies, travel northwest, recurve about the parallel of 30° N. to northeast, and then move along the Atlantic coast, affecting the weather for a few days, but this is the only real influence exerted by this remarkable current on the American side of the Atlantic Ocean.

The last great factor whose influence on climate is to be considered is the mountain system in the west, the modifying effect of which is twofold. First must be mentioned the simple effect of the reduction of temperature with elevation, which is about 1° Fahrenheit for every 330 feet. As we ascend above the earth's surface there is a rapid fall in temperature, even over the equator; at 2 miles' elevation the temperature is already reduced to 21° Fahrenheit, at 3 miles to 10°, and at 4 miles to zero. The effect of mountains is simply to thrust up the station of observation into the cooler layers of the atmosphere, the diminution of temperature, however, not being so great as found in free air over a plain at the same elevation. For comparison of the effect of elevation at station in North Carolina may be given the annual mean temperatures at coast stations: Wilmington, 63°; Southport, 64°; Hatteras and Newbern, 62°; and Kitty Hawk, 60°; and for the mountain section: Asheville (2,250 feet), 55°; Highlands (3,800 feet), 50°; and Linville (3,800 feet), 48°, or nearly the mean temperature of Boston. The reduction of temperature with increase of elevation is nearly a thousand times more rapid than the reduction with increase of latitude,^a and the effect of the mountain system is therefore to give the State a greater range in annual mean temperatures than if it extended in its greatest length north and south instead of east and west and were without the system of mountains.

The effect of elevation is to diminish the summer mean temperatures, but more markedly than the ocean does for eastern stations, and it also greatly lowers the winter means. These facts may be illustrated numerically by the following data: Mountain region, Asheville, summer mean temperature 70°, winter mean 39°; Highlands, summer mean 66°, winter mean 35°, and Linville, summer mean 65° and winter mean 31°. These means may be compared with the following stations in the interior: Charlotte (808 feet), summer mean 77°, winter 43°; Raleigh (376 feet), summer 77° and winter 42°; and Rockingham (210 feet), summer mean 79°, winter 43°. The corresponding figures for a few coast stations are: Wilmington, summer 78°, winter 48°; and Hatteras, summer 76.6° and winter 46.4°. In the mountains the absolute maximum temperatures are naturally much lower than in the east, especially in the central plain, where the greatest extremes occur. No maximum temperatures above 90° have ever been recorded at Highlands, Linville, Cranberry, or Jefferson.

The second effect of elevation is the constant tendency of mountain masses to discharge the moisture from the air. Precipitation in this case is chiefly caused by the upward deflection and consequent mechanical cooling of winds impinging against the slopes of the mountains by which the temperature of the air is lowered below the dew-point. On the other hand, after passing a mountain chain a descending wind has its temperature increased by compression, obtains a greater capacity

^a Hann's *Lehrbuch der Met.*, 1901, page 140.

for water vapor, and becomes a dry wind. The effect of the Appalachian chain is less than that of the ranges near the north Pacific coast: the latter are in the path of moist westerly winds from the Pacific Ocean, and the moisture is condensed on the windward or western slopes, but here the prevailing winds are southwest or northeast, parallel with and not across the mountains, while the westerly winds blow over a land surface and are dry. Nevertheless a unique illustration of the effect of mountains in condensing moisture is to be found in the southern and southeastern slopes of the Blue Ridge, where the valleys are open to the moist winds from the Atlantic. The region of greatest rainfall culminates in Macon County. Reliable records for a period of nineteen years at Highlands give an annual average precipitation for that place of 78.02 inches, and twelve years for Horse Cove, a station some few miles to the southeast of Highlands, give an average of 79.69 inches. The largest annual totals at these points were: Highlands, 106.07 inches in 1901 (105.24 in 1898); and Horse Cove, 105.89 in 1901. These amounts are probably rarely exceeded anywhere else in the United States, except on the coast of Washington or Oregon. It has frequently been observed that when the rainfall is excessive in the mountain district it is deficient on the coast; or when abundant rain falls along the coast less falls in the mountains. This is simply explained by the fact that low-pressure areas have a tendency to avoid passing directly over the mountains, but are constrained to move northward east of them over central North Carolina or west over Tennessee. A storm passing from south to north over central North Carolina will cause northeast, east, or southeast winds along the coast, laden with moisture from the Atlantic, and the precipitation will consequently be heaviest over eastern stations, dry westerly winds prevailing in the mountain region, while when storms pass over Tennessee the winds will be east, southeast, or south along the mountain slopes, will be forced upward and deprived of their moisture on the southern slopes, while eastward the ascending tendency of the air is not sufficient to cause heavy precipitation. The greater rainfall on the eastern mountain slopes is distinctly traceable as far north as Linville. The conditions most favorable for excessive rains on these slopes are: The presence of a depression of considerable force in the central valley, and an area of high barometer in the middle or north Atlantic Ocean, giving a gradient and resulting wind movement sufficient to cause a flow of air over the highest mountains of the west. The typical instance of this condition occurred on September 22, 1898, which resulted in twenty-four-hour rains of from 4 to 8 inches over all the counties immediately east of the Blue Ridge, while beyond the crest and in the eastern district the precipitation was comparatively light.

As might be expected, the small inclosed central valleys between the cross ranges are not so liable to receive excessive rains. Of the stations with records exceeding ten years, Asheville has the smallest annual rainfall of any place in the State, namely, 42.60 inches; Waynesville, similarly located, has an average fall of 47.62 inches. Compare with the eastern slopes: Hendersonville, 65.90 inches; Marion, 58.17; and Lenoir, 51.98.

There are many minor effects of the western elevation on the climate of the State or of interior localities which can hardly be considered here. Reference has already been made to the influence of the mountain barrier upon the movements of cold waves. During calm cold weather in winter the cold air flowing down the slopes of the mountains in inclosed valleys accumulates, and conditions being favorable to nocturnal radiation very low minimum temperatures can occur, reaching nearly 20° below zero during the severest cold waves. One other effect to be noticed depends on the relative position of the areas of high and low pressure. The usual effect of the presence of an area of low barometer in the central valley on the weather in North Carolina is to cause warm southerly winds, generally dry at first, and therefore associated with periods of pleasant weather in winter or spring. It frequently happens, however, that at the same time an area of high pressure of considerable intensity exists on the north Atlantic coast with a prolongation of high pressure to the southwest, usually accompanied by cold northeast winds and drizzling rain, which conditions are able to persist east of the mountains for some days, the latter preventing the low area in the central valley from exerting its proper influence.

Temperature.—There are two ways of combining the statistical data concerning the climate of any large area, each of which has some advantages. Local peculiarities of climate can only be discovered from the records of individual stations by uniting the monthly means into normals when a sufficient length of record is available; but to obtain even approximately correct normals, observations for more than twenty years are required. On the other hand, many valuable facts, especially useful in studying the character of past seasons and in estimating the general influence of climate upon the growth of crops, can best be ascertained by combining all observations in the State each month, to obtain the monthly means for each district, and after many years combining these means to find the normals. The latter method is naturally employed by climate and crop sections for the publication of current data, as it permits the utilization of observations which may not be continuous throughout the year. Both methods may be advantageously employed. Data are available for 78 stations in North Carolina having records for five years or more, and of these 48 include periods of ten years and 14 twenty years or more.

It is evident from its complex physical structure that a wide variation must exist in the mean temperatures of the different sections of North Carolina. Its geographical position indicates temperature conditions intermediate between the warmer region bordering the Gulf coast and the greater extremes of northern latitudes. The mean temperature of the State as a whole has been found to be 59°, or nearly the calculated mean temperature of the Northern Hemisphere. The monthly and seasonal means for the three districts and for the State at large are as follows:

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.	Spring.	Summer.	Autumn.	Winter.
Eastern district.....	43.1	45.5	50.6	58.6	68.2	75.8	79.6	78.1	72.6	62.6	52.6	44.7	61.0	59.1	77.8	62.6	44.4
Central district.....	39.8	42.6	49.2	58.1	68.6	75.5	78.9	76.9	70.9	59.8	49.7	42.0	59.3	58.6	77.1	60.1	41.5
Western district.....	37.7	40.3	46.6	55.6	64.5	71.6	74.6	73.4	67.8	56.9	46.9	40.0	56.3	53.6	73.2	57.2	39.3
The State.....	40.2	42.8	48.8	57.4	67.1	74.3	77.7	76.1	70.4	59.8	49.7	42.2	59.3	57.8	76.0	60.0	41.7

Means for thirty-two years.

The annual mean temperature of the State has varied during the last thirty-two years only between 57° in 1872 and 1895, and 61° in 1890, the warmest year of record. January is the coldest month, with a State mean of 40°. No individual station has a mean temperature for January below the freezing point of water, except Linville, 31.2°. July is the warmest month, with a State mean of 78°, but the highest average July mean at any individual station is 85°, at Southern Pines. The temperature increases more slowly in spring than it falls in autumn; the most rapid rise occurs from March to April 8.6° and from April to May 9.7° and the most rapid fall takes place from September to October -10.1° and from October to November -10.6°. The warmest summer occurred in 1900; the coldest winter in 1903-4.

The variations in temperature for individual stations are presented in the following summaries for each district.

Temperature in the eastern district.—As already stated, the winter means in this district, especially along the immediate coast, are much higher than in the interior portion of the State; the summer means, but only where the land projects most sharply into the ocean, are slightly lower, and there are corresponding differences in the yearly ranges of mean temperature and extremes. The annual temperature along the coast varies from 64° at Southport, the warmest station in North Carolina, to 63° at Wilmington, 62° at Hatteras and Newbern, 60° at Kitty Hawk, and 59° at Norfolk, Va., at the extreme northeast corner of the State. In the interior the means are lower except in the south portion, where the sandy nature of the soil increases the summer temperatures materially, and offsets the effect of the lower winters away from the coast line. The range in the interior of the district is from 61° at Lumberton to 59° at Weldon and 58° at Littleton. The absolute maximum temperatures in this section are quite high, even on the coast, except only at Hatteras, where the highest in twenty-nine years has been 92°. Elsewhere the maxima exceed 100°, and 107° has been reached at two northern points—Kitty Hawk and Weldon. Minimum temperatures below zero are possible in the northern portion of the eastern district.

Résumé for the eastern district: Highest mean temperature for many years, 81.6°, in July, at Kinston; lowest mean temperature, 40.6°, in January, at Littleton; highest monthly mean, 85.2°, in August, 1900, at Washington; lowest monthly mean, 27.6°, in January, 1893, at Littleton; highest mean maximum temperature, 73° at Sloan, Newbern, and Tarboro; lowest mean minimum temperature, 48°, at Tarboro; highest absolute temperature, 107°, July 18, 1887, at Kitty Hawk, and July 12, 1879, at Weldon; lowest absolute temperature, 9° below zero, January 17, 1893, at Weldon.

Temperature in the central district.—Here the annual range in mean temperatures becomes great, but as the rainfall is less and the air drier, the extremes are more endurable. The southern portion is largely covered by a sandy soil and shows a high degree of summer heat, causing a marked upward bend of the isothermal lines at that season, while in the northern portion the winters become more severe. The annual range of mean temperatures is from 62° at Rockingham and Southern Pines in the south portion, to 59° at Henderson and 58° at Roxboro in the north; and Saxon in the extreme northwest portion has a mean of 57°. The summer temperatures vary from 75° at Soapstone Mount to 79° at Rockingham, and the winter temperatures from 45° at Southern Pines to 38° at Salem, Saxon, and Roxboro (omitting the short record for Reidsville). Very high maximum temperatures occur also in this district, but it is a remarkable fact that suffering from sunstrokes is extremely rare in North Carolina, and death from such cause practically unknown.

Résumé for the central district: Highest monthly mean for many years, 80.4°, in July, at Rockingham; lowest mean temperature, 36.6°, in January, at Saxon; highest monthly mean, 85°, in August, 1900, at Southern Pines; lowest monthly mean, 26.8°, in January, 1893, at Saxon; highest mean maximum temperature, 73°, at Rockingham; lowest mean minimum temperature, 44°, at Soapstone Mount; highest absolute temperature, 107°, July 19, 1902, at Chapel Hill; lowest absolute temperature, 16° below zero, February 14, 1899, at Soapstone Mount.

Temperatures in the western district.—In the western district there is a great reduction in temperature, summer and winter alike, except at some stations east of the mountains near the western limit of the Piedmont Plateau, which do not greatly differ in temperature conditions from the stations of the central district. As the air of the mountains is dry and salubrious, the summers are cool and pleasant; the winters are more severe without, however, approaching in any degree the severity of winter farther north either in the Middle States or New England. As the elevation of stations varies from 650 to 4,180 feet in this section, which is topographically very complex, it is not surprising to find great differences in temperature as well as in other climatic elements at stations not far apart. The annual means vary from 60° at Charlotte and Salisbury east of the Blue Ridge to 52° at Cranberry, 50° at Highlands, and 48° at Linville in the northern portion. The summer mean for the district as a whole is 73°, but using Asheville to represent the mountain region proper (between the Blue Ridge and the western chain) it is only 71°. The winter means are low, for the whole district 39.8° and for Asheville 38.8°. The winter means at some of the highest stations are: Highlands, 35°, Cranberry, 36°, and Linville, 31.3°. The highest temperatures are always observed east of the Blue Ridge and may exceed 100°, and the lowest are usually found at the higher valley stations, below zero temperatures being recorded quite frequently. Such a low degree of cold is seldom of long duration even in the mountains, and during most ordinary winters zero is not reached at all.

The most interesting of the cold plateau regions in this district is that containing Mount Mitchell, with an elevation of 6,711 feet. In 1873 a meteorological station was maintained on Mount Mitchell during four months and the following mean temperatures were obtained: May 49.3°, June 54.1°, July 56.4°, and August 55.3°. As the year 1873 was generally deficient in temperature throughout the State, these mean temperatures indicate that on the loftiest peak of the Appalachians the annual mean remains above freezing and there can be no permanent snow line in western North Carolina.

Résumé for the western district: Highest mean temperature for many years, 79.3°, in July, at Salisbury; lowest mean for many years, 30.3°, in February, at Linville; highest monthly mean, 83.2°, in July, 1893, at Salisbury; lowest monthly mean, 19.9°, in February, 1895, at Linville; highest mean maximum temperature, 70°, at Charlotte; lowest mean minimum, 38°, at Linville; highest absolute temperature, 103°, August 8, 1900, at Marion; lowest absolute temperature, 19° below zero, February 13, 1899, at Highlands.

In studying the distribution of temperature graphically it is to be observed that the trend of the isothermal lines is from northeast to southwest, and that they curve southward around the lower portion of the Appalachians, rising northward again in

the Mississippi Valley. A similar slight southward bend occurs on the coast north of Hatteras. From April to August there is a distinct change in thermal conditions evinced by the upward curving of the summer isotherms in the central part of the State. This is very marked in July, when the lines including the warmest area of the State pass from near Wilmington northeast to Beaufort, thence northwest in a broad curve around Washington, Tarboro, and Raleigh, and then southwest near Southern Pines to the South Carolina boundary near Wadesboro. In the west, the winter isotherms are closed circles around the several plateaus of the mountain district.

Precipitation.—East of the Rocky Mountains the area of heaviest precipitation centers on the Gulf coast near the mouth of the Mississippi River, where the average exceeds 60 inches per annum. The amount of precipitation received in North Carolina is very considerable, not only on the coast from Cape Lookout to Hatteras (over 60 inches), but also in some western counties, where the annual fall exceeds 70 inches, and in individual years sometimes exceeds 100 inches. The recognition of the existence of this unique area of heavy precipitation in western North Carolina is of recent date, and it will usually not be found distinctly outlined on the earlier precipitation charts for the United States.

The annual average rainfall for the State has been found to be 52 inches. The annual average has varied from 64.88 inches in 1877 (closely followed by 62.66 inches in 1901, an extraordinarily wet year) to a minimum of 44.46 in 1902. The period from about 1889 to 1900 was characterized by a prolonged deficiency in annual precipitation, as indicated by the following departures from normals for thirty-two years which include the dry years:

Year.	Departure.	Year.	Departure.
1889.....	-1.27	1895.....	-1.77
1890.....	-5.51	1896.....	-4.46
1891.....	+2.55	1897.....	-5.81
1892.....	-4.96	1898.....	-1.96
1893.....	+0.66	1899.....	+0.08
1894.....	-5.43	1900.....	-3.60

The accumulated deficiency for the period is -31.48 inches, plainly indicating the operation of some cosmical cause tending to lessen the number of storms influencing the region in question.

The monthly and seasonal averages of precipitation for the three districts and the State are given below:

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.	Spring	Sum- mer.	Aut- umn.	Win- ter.
Eastern district.....	3.94	3.93	4.15	3.72	4.10	4.20	5.83	6.29	4.08	4.19	3.04	3.49	51.05	11.97	16.41	11.31	11.36
Central district.....	4.10	4.24	4.35	3.72	4.41	4.11	5.54	5.40	4.15	3.38	2.96	3.54	49.99	12.48	15.14	10.49	11.88
Western district.....	4.50	5.15	5.60	4.11	3.88	5.10	4.58	6.71	4.64	3.26	3.60	4.43	54.96	13.59	15.79	11.50	14.08
The State.....	4.18	4.44	4.70	3.85	4.13	4.50	5.45	5.83	4.29	3.61	3.20	3.82	52.00	12.68	15.78	11.10	12.44

Means for thirty-two years.

It will be observed that the rainfall is abundant and uniformly distributed, and although there are frequently deficiencies in rainfall of sufficiently long duration to be called droughts, a total failure of crops from such cause is quite impossible. The maximum precipitation occurs in July (average 5.45 inches) and August (average 5.83 inches) and the minimum in November (average 3.20 inches) with a secondary minimum in April (average 3.85 inches). The period from 1873 to 1885 was characterized by an excess in precipitation, and that from 1889 to 1900 by a marked deficiency. The largest monthly averages for the area of the State were: September, 1877, 10.13 inches; and August, 1901, 12.18 inches. The smallest annual occurred in November, 1890, during which month no measurable precipitation occurred at five places in North Carolina, an event more usually associated with the arid regions of the West than with any eastern State.

It is apparent that rainfall is a climatic factor subjected to far greater variations than temperature and that a correspondingly longer series of observations is required to obtain correct averages. In the case of stations possessing records for the past twelve years only, the averages will probably ultimately be found too low; but such as have record since 1872 and cover period of both excess and deficiency may be considered as correct. In the detailed summaries for each district only stations having a length of record of ten years or more are used.

Precipitation in the eastern district.—The annual rainfall along the immediate coast, from Hatteras to Cape Lookout, is slightly over 60 inches, but the amount decreases rapidly on the coast south to 49.27 inches at Southport and north to 47.77 inches at Edenton, as well as toward the interior, Raleigh 49.97. As a whole, the average for the eastern district is slightly above 50 inches per annum, with the maximum in July and August, the minimum in November, December, and April. The reason for the comparatively slight increase of rainfall caused by the proximity of the ocean in the east is probably the fact that the elevation of the land surface westward is very gradual for over 300 miles, and there is therefore an absence of any ascending tendency in the air flowing in from the ocean, unless a marked barometric depression is present in the interior of the State.

Résumé for the eastern district: Greatest monthly average for many years, 7.86 inches, in August, at Newbern; least monthly average for many years, 2.23 inches, in October, at Scotland Neck; greatest monthly total, 22.73 inches, in August, 1887, at Tarboro; least monthly total, trace, in November, 1890, at Hatteras; greatest rainfall in twenty-four hours, 8.48 inches, August 16 and 17, 1899, at Pantego.

Precipitation in the central district.—There is a distinct region of diminished precipitation in the interior of the State, where the rainfall is largely due to convectional currents—thunderstorms—and the time of maximum accordingly coincides with the warmest month, July. At most stations here the annual rainfall is under 50 inches but over 45. The rainfall is largest in amount in summer, nearly equal in spring and winter, and least in autumn.

There is no marked uniformity in the distribution of rainfall in this section except that the smallest amounts occur near the Virginia boundary line.

Résumé for the central district: Greatest monthly average for many years, 7.64 inches in July, at Southern Pines; least monthly average for many years, 2.26 inches in November, at Raleigh; largest monthly amount, 17.50 inches, in July, 1879, at Fayetteville, least monthly amount, traces, in November, 1890, at Chapel Hill and Oak Ridge; maximum rainfall in twenty-four hours, 8 inches, July 16, 1901, at Southern Pines.

Precipitation in the western district.—In regard to the rainfall for the western district the most noteworthy fact is the large amount received during February and March, for although the maximum occurs in August (average for district, 5.71 inches) the late winter and early spring months approach very closely to this amount (February average 5.15 inches and March 5.60 inches). It is not unexpected, therefore, to find that at many western stations the usual summer maximum is quite suppressed, and the largest amounts occur much earlier in the season. This is the case at Bryson City, Franklin, Highlands, Linville, Morganton, Waynesville, and other places approximately. This fact unquestionably shows that the rainfall in the west is more cyclonic in character, and is due to the low course in latitude of cyclonic areas in winter and early spring, since the influence of the larger proportion of storms is exerted in the western portion of the State. The least rainfall in this district occurs in October and November, the spring minimum being deferred to May.

Reference has already been made to the heavy rainfall on the southern and southeastern slopes of the Blue Ridge, which culminates in Macon County. The unusually large annual averages for Highlands (78.02) and for Horse Cove (79.69), extended by Hendersonville (annual average, 65.90 inches) and Flat Rock (66.86 inches) on the east, and by Murphy (59.14 inches) on the west, show an area of excessive precipitation of considerable extent, which can be traced much farther north on the east side of the Blue Ridge. Immediately beyond the crest of the mountains there is a rapid diminution of rainfall, many of the interior valleys receiving smaller amounts than occur at interior plain stations. The annual average at Asheville is only 42.60 inches, Waynesville, 47.62. The rainfall diminishes toward the east as distance from the mountains increases.

Résumé for the western district: Greatest monthly average, 8.73 in August at Horse Cove; least monthly average, 2.10 in October at Waynesville; greatest monthly total on record, 30.74 inches in August, 1901, at Highlands; least monthly total none in November, 1890, at Franklin, Lenoir, and Mount Holly; maximum rainfall in twenty-four hours, 9.50 inches, October 21, 1900, at Linville.

Snowfall in North Carolina.—Snowfall is not an important factor in the climate of North Carolina. As a rule its presence is a matter of discomfort, for it never remains dry long, but becomes soft and slushy underfoot. There is never an accumulation of snow in winter anywhere in the mountains sufficiently large to become an element in the production of spring floods. Snow falls more frequently in the mountains than elsewhere, but the maximum amount in twenty-four hours (or for a consecutive snowstorm) often occurs in the central-east portion of the State, because it is more open to the northeast winds which accompany low areas moving near the southern or eastern border of North Carolina, with which snow usually occurs. During the past ten years there has been a marked excess in snowfall, caused by a succession of severe winters at short intervals—namely, in 1893, 1895, and 1899. The earliest record of a snowfall of over 10 inches is that of February 18, 1857, and it is noteworthy that nearly all the heaviest snowfalls of recent years have also occurred in February. For the winters of 1834, 1856, and 1857, so often quoted as the severest ever known, there are no authentic records, but it is quite probable that they must now give place in climatic history to those of 1893 and 1895.

The average snowfall for the State, as calculated from the records for 50 stations, is as follows:

	Jan.	Feb.	Mar.	Apr.	May.	Oct.	Nov.	Dec.	Year.
Eastern district	1.4	3.3	0.1	0.1	.....	.....	0.1	0.9	5.9
Central district	2.5	4.5	0.3	0.2	.....	T.	0.1	1.8	9.4
Western district	2.9	4.1	0.3	0.3	T.	T.	0.2	1.4	9.7
The State	2.3	4.0	0.4	0.2	T.	T.	0.1	1.4	8.4

Miscellaneous phenomena.—Under this head may be conveniently collected some data with reference to prevailing winds, storms, the occurrence of frost, ice, and other phenomena of minor importance in the climatic history of the State. Below are given for the State at large the prevailing winds and average velocity, and the average number of clear, partly cloudy, cloudy, and rainy days.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
Prevailing winds	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	SW.	SW.
Average hourly velocity	8.6	9.5	9.6	9.1	7.8	7.2	6.9	6.5	6.9	7.6	7.8	8.0	8.0
Clear days	11	10	11	13	12	11	11	11	14	16	13	13	146
Partly cloudy days	9	8	9	9	12	12	12	12	9	8	9	8	117
Cloudy days	11	10	11	8	7	7	8	8	7	7	8	10	102
Rainy days (0.01 inch or more)	11	10	11	9	10	11	12	11	7	7	8	9	116

The prevailing winds are from the southwest during the entire year except September, October, and November, when northeast winds are of more frequent occurrence. The general trend of the mountain system in the west undoubtedly has some influence in causing the nearly complete suppression of easterly and southeasterly components, which rarely prevail for any considerable length of time, while southwest winds sometimes continue for several days in succession. The movement is generally light and variable in the interior, but often high on the coast. The average wind velocity for the State, determined

from observations at regular Weather Bureau stations only, is about 8 miles an hour, on the coast averaging perhaps 10 miles, in the interior but little over 6. This amount of wind movement is quite insufficient for utilization as a source of power in windmills, except possibly on the coast. The largest average hourly wind velocity occurs in March, but is very nearly as large in February and April; the least occurs in July, August, and September.

The moderate wind movement in the interior is only disturbed by summer thunderstorms or the occasional passage near the State of barometric depressions of sufficient force to cause a material increase in wind velocity throughout the entire eastern section of the United States. This refers particularly to the passage of subtropical hurricanes along the coast. In this respect Hatteras has a world-wide reputation among mariners as a place of great danger to shipping. The storms of tropical origin, usually occurring from August to October, though noted for their violence and destructiveness, can not strictly be said to be very frequent. Sometimes two or more years may pass without the State coming under the influence of such storms.

The dates of a few of the most violent subtropical storms are here given, for which full details may be obtained in the Monthly Weather Reviews: March 1-2, 1872; November 17, 1873; September 28, 1874; September, 1876; January, 31, 1878 (wind at Cape Lookout reached a velocity of 120 miles southeast); August 18, 1879 (wind at Cape Lookout reached 138 miles an hour); August 15, 1880 (wind reached 68 miles west at Wilmington); September 9, 1881; August 24-25, 1885 (wind reached 98 miles at Southport).

In recent years there have been relatively few of these storms, though quite severe storms occurred in September, 1886, on September 26 and October 8-9, 1894; September, 1899, and August 27-28 and October 13, 1893. The maximum velocity at Hatteras was 105 miles from the north August 17, 1899, while at Raleigh the maximum has never exceeded 45 miles.

Thunderstorms may occur in any month in North Carolina, but of course are most frequent during midsummer. They are usually of moderate force, and not often accompanied by hail, which when it does fall is usually quite small. The annual average number of thunderstorms is approximately 40 to 50 in the interior of the State, but much less near the coast (Hatteras 23, Wilmington 31). Hail falls most frequently without question in May; but the average number of days with hail is not more than 2 or 3 a year at most stations. On May 30, 1898, crops were damaged by hail in 22 counties; and similar storms occurred May 5, 1902.

The average date of the last killing frost in spring is April 10 for the larger portion of the State. At Hatteras, the last frost occurs February 28; at Blowing Rock, May 10. The line for April 1, is 50 miles within the coast line, which it closely follows; and that for April 30, surrounds only the higher plateau region in the west.

In autumn, the first killing frost occurs about November 1, over the central portion of the State; the latest date is December 10, at Hatteras; the earliest, September 30, at Linville.

The formation of ice of any great thickness is not common; enough for cutting is hardly ever formed even in the extreme west, so that all supplies of ice must be artificially made or imported. Nevertheless, during such severe winters as occurred, for instance, in 1886, 1893, 1895, and 1899, all the rivers freeze and even the sounds have been frozen over with ice a few inches thick. In 1893 the Cape Fear River at Fayetteville, the Neuse at Newbern, the Roanoke at Weldon, and Albemarle Sound from Elizabeth City to Roanoke Island were covered with ice. In quiet waters in the west, ice has formed to a thickness of 12 inches or more, and thin ice has occurred as far south as Wilmington.

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—			
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.	
		° F.	° F.	° F.	° F.		° F.				
Mount Airy.....	1	56	67	44	98	August, 1895.....	-15	January, 1893...	20	98	
Roxboro.....	2	58	69	47	100	July, 1902.....	-7	February, 1899....	34	69	
Henderson.....	3	59	69	49	104	August, 1896.....	-2	do.....	37	66	
Weldon.....	4	59	69	49	107	July, 1879.....	-9	January, 1893....	33	66	
Linville.....	5	48	59	38	89	July, 1903.....	-15	February, 1899....	0	130	
Lenoir.....	6	56	66	48	98	July, 1881.....	-15	January, 1880....			
Soapstone Mount.....	7	57	70	44	101	August, 1900.....	-16	February, 1899....	38	90	
Chapel Hill.....	8	60	71	49	107	July, 1902.....	-6	do.....	38	65	
Raleigh.....	9	60	69	50	103	July, 1887.....	-2	do.....	32	51	
Tarboro.....	10	60	73	48	106	September, 1899.....	-2	do.....	66	63	
Waynesville.....	11	54	66	42	93	August, 1902.....	-12	January, 1897....	0	97	
Asheville.....	12	55	66	44	96	September, 1897.....	-9	January, 1893....	5	84	
Highlands.....	13	50	61	40	87	June, 1902.....	-19	February, 1889....	0	106	
Charlotte.....	14	60	70	51	102	July, 1887.....	-5	February, 1899....	32	45	
Rockingham.....	15	61	73	50	103	July, 1902.....	-15	do.....	38	56	
Fayetteville.....	16	61	72	50	102	August, 1900.....	-5	do.....	44	54	
Goldsboro.....	17	61	71	50	105	August, 1896.....	9	December, 1899....	38	63	
Newbern.....	18	62	73	52	100	July, 1898.....	2	February, 1899....	27	38	
Hatteras.....	19	62	73	57	92	—, 1902.....	8	December, 1880....	0	15	
Sloan.....	20	62	73	51	102	August, 1900.....	1	February, 1899....	36	50	
Lumberton.....	21	61	72	51	102	July, 1902.....	1	do.....	43	54	
Wilmington.....	22	63	72	55	103	July, 1879.....	5	do.....	22	26	
Southport.....	23	64	71	55	100	July, 1897.....	1	do.....	10	25	

STATE SUMMARY—Continued.

Station	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						Inches.	Inches.	Inches.	Inches.	Inches.
Mount Airy	1	Oct. 16	Apr. 16	Oct. 1	May 8	46.3	11.0	15.3	9.5	10.5
Roxboro	2	Oct. 24	Apr. 10	do.	Apr. 24	46.6	12.9	13.1	9.8	10.8
Henderson	3	Oct. 31	Apr. 7	Oct. 10	Apr. 21	50.2	14.0	14.7	10.0	11.5
Weldon	4	Oct. 27	Apr. 9	do.	May 6	46.0	11.2	14.5	9.9	10.4
Linville	5	Sept. 30	Apr. 30	Sept. 14	May 27	60.2	14.4	16.6	14.8	14.4
Lenoir	6	Oct. 21	Apr. 17	Oct. 1	May 7	52.0	13.1	15.4	11.1	12.4
Soapstone Mount	7	Oct. 17	do.	do.	May 6	50.3	13.0	14.9	10.7	11.7
Chapel Hill	8	Oct. 30	Apr. 8	do.	do.	47.6	12.7	13.3	9.9	11.7
Raleigh	9	Nov. 3	Apr. 3	Oct. 8	do.	49.9	13.0	16.7	9.3	10.9
Tarboro	10	Oct. 28	Apr. 11	Oct. 10	Apr. 30	51.7	12.3	17.5	10.3	11.6
Waynesville	11	Oct. 10	Apr. 20	Sept. 28	May 14	47.7	14.2	13.5	7.0	13.0
Ashville	12	Oct. 20	Apr. 22	Oct. 1	do.	42.6	9.7	11.1	13.6	8.2
Highlands	13	Oct. 7	May 5	Sept. 17	May 26	78.2	18.7	21.3	16.6	21.6
Charlotte	14	Nov. 4	Apr. 1	Oct. 8	Apr. 26	49.6	12.1	15.1	9.7	12.7
Rockingham	15	Nov. 2	Apr. 10	Oct. 2	Apr. 24	50.6	11.2	18.1	9.5	11.8
Fayetteville	16	Nov. 8	Apr. 3	Oct. 19	Apr. 21	56.0	13.7	17.4	11.2	13.7
Goldsboro	17	Nov. 4	Apr. 4	Oct. 17	do.	51.7	13.5	17.9	10.3	10.0
Newbern	18	Nov. 8	Apr. 1	Oct. 10	Apr. 11	55.0	12.1	19.8	11.7	11.4
Hatteras	19	Dec. 11	Feb. 28	Nov. 7	Apr. 19	62.5	13.8	17.2	16.7	14.8
Sloan	20	Nov. 6	Apr. 4	Oct. 10	Apr. 21	54.4	11.9	19.7	10.6	12.2
Lumberton	21	Nov. 2	do.	do.	Apr. 28	51.0	12.1	17.1	9.8	12.0
Wilmington	22	Nov. 15	Mar. 27	Oct. 16	May 1	51.5	10.4	19.3	11.7	10.1
Southport	23	Nov. 16	Mar. 28	Nov. 7	Apr. 10	49.1	10.0	16.1	12.2	10.8

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station	District.	Page.
Alamance (see Chapel Hill).		Central		Jones (see Newbern)		Eastern	
Alexander (see Weldon)		Western		Lenoir (see Goldsboro)		do.	
Alleghany (see Mount Airy)		do.		Lincoln (see Charlotte)		Western	
Anson (see Rockingham)		Central		McDowell (see Asheville)		do.	
Ashe (see Linville)		Western		Macon	Highlands	do.	291
Beaufort (see Newbern)		Eastern		Madison (see Asheville)		do.	
Bertie (see Weldon)		do.		Martin (see Tarboro)		Eastern	
Bladen (see Lumberton)		do.		Mecklenburg	Charlotte	Western	292
Buncombe	Asheville	Western	290	Mitchell	Linville	do.	293
Brunswick	Southport	Eastern	301	Montgomery (see Rockingham)		Central	
Burke (see Lenoir)		Western		Moore (see Rockingham)		do.	
Cabarrus (see Charlotte)		do.		Nash (see Tarboro)		Eastern	
Caldwell	Lenoir	do.	284	New Hanover	Wilmington	do.	300
Camden (see Norfolk, Va.)		Eastern		Northampton (see Weldon)		do.	
Carteret (see Newbern)		do.		Onslow (see Sloan)		do.	
Caswell (see Roxboro)		Central		Orange	Chapel Hill	Central	286
Catawba (see Lenoir)		Western		Pamlico (see Newbern)		Eastern	
Chatham (see Soapstone Mount).		Central		Pasquotank (see Norfolk, Va.)		do.	
Cherokee (see Highlands)		Western		Pender (see Wilmington)		do.	
Chowan (see Weldon)		Eastern		Perquimans (see Weldon)		do.	
Clay (see Highlands)		Western		Persimmon	Roxboro	Central	280
Cleveland (see Charlotte)		do.		Pitt (see Tarboro)		Eastern	
Columbus (see Wilmington)		Eastern		Polk (see Asheville)		Western	
Craven	Newbern	do.	296	Randolph	Soapstone Mount	Central	285
Cumberland	Fayetteville	Central	294	Richmond	Rockingham	do.	293
Currituck (see Norfolk, Va.)		Eastern		Robeson	Lumberton	Eastern	299
Dare	Hatteras	do.	297	Rockingham (see Mount Airy)		Central	
Davidson (see Soapstone Mount).		Central		Rowan (see Charlotte)		Western	
Davie (see Mount Airy)		Western		Rutherford (see Asheville)		do.	
Duplin	Sloan	Eastern	298	Sampson (see Fayetteville)		Eastern	
Durham (see Chapel Hill)		Central		Scotland (see Lumberton)		Central	
Edgecombe	Tarboro	Eastern	288	Stanley (see Charlotte)		do.	
Forsyth (see Mount Airy)		Central		Stokes (see Mount Airy)		do.	
Franklin (see Henderson)		do.		Surry	Mount Airy	Western	279
Gaston (see Charlotte)		do.		Swain (see Waynesville)		do.	
Gates (see Weldon)		Eastern		Transylvania (see Asheville)		do.	
Graham (see Waynesville)		Western		Tyrrell (see Hatteras)		Eastern	
Granville (see Henderson)		Central		Union (see Charlotte)		Central	
Greene (see Goldsboro)		Eastern		Vance	Henderson	do.	281
Guilford (see Soapstone Mount).		Central		Wake	Raleigh	do.	287
Halifax	Weldon	Eastern	282	Washington (see Tarboro)		Eastern	
Harnett (see Fayetteville)		Central		Warren (see Henderson)		Central	
Haywood	Waynesville	Western	289	Watauga (see Linville)		Western	
Henderson (see Asheville)		do.		Wayne	Goldsboro	Eastern	295
Hertford (see Weldon)		Eastern		Wilkes (see Mount Airy)		Western	
Hyde (see Hatteras)		do.		Wilson (see Tarboro)		Eastern	
Iredell (see Charlotte)		Western		Yadkin (see Mount Airy)		Western	
Jackson (see Highlands)		do.		Yancey (see Asheville)		do.	
Johnston (see Raleigh)		Central					

NORTH CAROLINA.

Western District: SURRY COUNTY. Station: MOUNT AIRY.

JOSEPH W. ASHBY, Observer.

[Established by the Signal Service in April, 1889. Latitude, 36° 30' N. Longitude, 80° 20' W. Elevation, 1 048 feet.]

Mount Airy is situated in a basin between the Blue Ridge Mountains on the north and west, State Mountains on the east, and Little Mountains south and southwest. Two streams—Ararat River and Lovell's Creek—meet about a mile south of the observer's residence. The town is on a ridge of moderate elevation.

The dwelling house of the observer is situated in the southern part of Mount Airy, on the corner of Spring street and Pender avenue. The instrument shelter (standard kind) is about 35 feet from the house, over sod; the shelter opens toward the northeast, and the thermometers are about 5 feet above the ground. The rain gage is 5 feet from the shelter; the top of the gage is about 3 feet above the ground.

The mean temperatures were obtained from the daily extremes.

Tabulated data are for the period of observation, May 1, 1890, to December 31, 1903, with an additional short record of the Smithsonian collection (Mr. R. S. Gilmer, observer) extending from January to August, 1872.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	38	49	72	28	2	48	34	3.1	5	3.8	8.9	0.8	7.5	SW.
January.....	36	46	74	27	-15	47	26	3.4	6	2.8	3.5	3.4	8.0	SW.
February.....	38	49	75	28	-1	47	28	4.0	7	4.9	1.3	2.8	8.0	SW.
Winter mean.....	37	48	74	28	-5	48	27	10.5	18	11.5	13.7	7.0	8.0	SW.
March.....	46	57	83	35	8	53	41	4.3	7	0.9	3.4	0.4	1.5	SW.
April.....	55	67	94	43	22	61	52	3.2	6	2.2	6.6	0.2	3.0	SW.
May.....	65	77	95	52	28	70	61	3.5	9	2.2	6.1	0.0	0.0	SW.
Spring mean.....	55	67	94	43	19	61	51	11.0	22	5.3	16.1	0.6	0.0	SW.
June.....	72	83	98	60	42	75	69	4.6	10	2.0	8.7	0.0	0.0	SW.
July.....	75	86	97	64	47	78	73	5.0	10	3.4	4.8	0.0	0.0	SW.
August.....	74	85	98	63	44	78	71	5.7	9	0.8	16.6	0.0	0.0	SW.
Summer mean.....	74	85	98	62	44	78	71	15.3	29	6.2	30.1	0.0	0.0	SW.
September.....	68	80	95	56	34	72	64	4.1	6	1.1	3.8	0.0	0.0	SW.
October.....	56	69	86	44	21	62	51	2.7	4	3.3	1.0	0.0	0.0	SW.
November.....	46	58	78	34	10	52	41	2.7	5	1.1	1.4	0.4	2.0	SW.
Fall mean.....	57	69	86	45	15	62	51	9.5	15	5.5	6.2	0.4	0.0	SW.
Annual mean.....	56	67	98	44	-15	68	61	46.3	84	28.5	66.1	8.0	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 90° or above.	Year.	Minimum below 10°.	Maximum 90° or above.
1894	Dec. 29, 30.....	June 29; Aug. 10.	1900	Jan. 2, 4, 5, 30; Feb. 1, 18, 25; Mar. 17, 18.	July 16, 18-20; Aug. 7, 9-12, 15, 16, 19.
1895	Jan. 1, 13; Feb. 6, 8, 9, 13, 18.	June 3, 4.	1901	Feb. 1, 25; Dec. 16, 17, 21, 22, 24.	None.
1896	Jan. 4; Feb. 18, 21, 22.	Aug. 9, 10.	1902	Feb. 18.....	July 5.
1897	Jan. 7, 28-31.....	Sept. 10, 11.	1903	Feb. 18.....	None.
1898	Feb. 3, 4; Dec. 15.	July 2.			
1899	Feb. 1, 9-11, 13, 14; Dec. 30, 31.	July 17; Aug. 20.			

NORTH CAROLINA.

Central District: PERSON COUNTY. Station: ROXBORO.

J. A. Wise, Observer.

[Established by the U. S. Weather Bureau in October, 1892. Latitude, 36° 26' N. Longitude, 78° 26' W. Elevation, 600 feet.]

Roxboro is situated in the extreme northern portion of the central district, near the boundary line between North Carolina and Virginia. The city lies in a basin and is surrounded by hills of considerable elevation on the west, north, and southeast, called Fullers and Hugas mountains, in which isolated points reach an elevation of nearly 1,000 feet. The hilly country surrounding is not thickly forested in the immediate vicinity of the station and the soil is more of a loamy character, though with considerable reddish clay.

The instruments are exposed at the dwelling of the observer, near the central portion of the town. No shelter has been used, the thermometers being placed on a porch facing northeast, at an elevation of about 10 feet above the ground. The thermometers at no time come under the direct rays of the sun and are not influenced by the interior warmth of the house in winter. The rain gage is about 50 feet from the house in an open space, with the top of the gage about 4 feet above the ground. There has been no change of observers or in the location of the instruments since the establishment of the station.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 1, 1892, TO NOVEMBER 30, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	40	50	69	30	0	43	37	3.1	6	3.1	5.6	3.0	12.0
January.....	37	47	73	27	0	42	30	3.1	6	2.5	2.2	3.7	10.0
February.....	38	48	71	28	- 7	44	30	4.6	8	5.6	1.1	4.8	9.0
Winter mean.....	38	48		28				10.8	20	11.2	8.9	11.5	
March.....	50	61	86	38	11	55	46	4.1	8	4.3	3.8	0.5	1.5
April.....	57	68	91	45	22	62	51	3.7	7	6.2	6.2	0.2	2.5
May.....	67	79	95	55	35	72	63	5.1	8	2.6	9.2	0.0	0.0
Spring mean.....	58	69		46				12.9	23	13.1	19.2	0.7	
June.....	74	85	100	63	42	76	70	3.5	7	2.0	1.	0.0	0.0
July.....	78	89	100	66	52	80	75	5.6	9	6.7	5.7	0.0	0.0
August.....	76	88	100	65	48	82	74	4.0	7	0.8	11.9	0.0	0.0
Summer mean.....	76	87		65				13.1	23	9.5	19.5	0.0	
September.....	70	82	100	59	35	76	67	3.8	6	1.5	5.5	0.0	0.0
October.....	58	69	88	47	25	63	54	3.4	6	2.7	1.3	0.0	0.0
November.....	49	60	79	38	13	56	43	2.6	1	2.8	1.7	T.	T.
Fall mean.....	59	70		48				9.8	16	7.0	8.5	T.	
Annual mean.....	58	69	100	47	- 7			46.6	82	40.8	56.1	12.2	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 2, 13, 26, 27; Feb. 2, 5, 6, 16, 17, 24-27; Mar. 27, 28; Nov. 12, 29; Dec. 28-31.	June 22-24, 29; July 12, 13, 21; Aug. 9.	1900	Jan. 1-5, 9, 13, 14, 26, 27, 29-31; Feb. 1, 2, 17-20, 25-27; Mar. 7, 16-18; Nov. 17; Dec. 10, 12, 15-17, 27.	July 4-8, 16-22; Aug. 7-13, 15, 16, 18, 20, 24-28; Sept. 6-12.
1895	Jan. 1, 2, 4, 5, 13-15, 24, 25; Feb. 3-17, 23, 24; Mar. 17, 23; Nov. 28, 29; Dec. 4-6, 11-15.	May 31; June 1-4; July 18-21; Aug. 11, 12, 29; Sept. 19-23, 25, 26.	1901	Jan. 4, 14, 18-20, 25, 29; Feb. 1, 7, 13-15, 20-25, 28; Mar. 6, 7; Nov. 17-21, 27, 29; Dec. 5, 6, 7, 15-22.	June 24; July 1, 2, 6, 29, 30.
1896	Jan. 2, 4-10, 14-16, 28; Feb. 17-19, 21, 22, 26; Dec. 2-5, 20-22, 24-29.	Apr. 18; May 10, 18; July 28-30; Aug. 6, 7, 9-11, 16; Sept. 18.	1902	Jan. 2, 4-6, 12-14, 17, 18, 20, 29, 30; Feb. 3-6, 8-20; Mar. 18, 19; Dec. 9, 10, 15, 25-28.	June 12, 13; July 3-6, 9, 10, 17-20; Aug. 3, 4, 8, 11
1897	Jan. 6-9, 12-14, 26, 27-31; Feb. 1, 4, 5, 27, 28; Mar. 27; Apr. 2; Nov. 18, 24, 25, 28, 30; Dec. 1, 6, 20, 23-29.	June 16, 17, 30; July 3; Aug. 30; Sept. 9, 11, 14.	1903	Jan. 1, 7-10, 12-15, 19, 20, 25; Feb. 17-20; Mar. 2; Nov. 7, 8, 19, 20, 27-30; Dec., no record.	July 3, 4, 26, 30; Aug. 25, 26, 28.
1898	Jan. 1-4, 17-19, 27, 28, 30, 31; Feb. 1-9, 16, 17, 22-24, 26-28; Mar. 1, 2, 7; Nov. and Dec., missing.	June 12; July 2, 4.			
1899	Jan. 1-3, 7-9, 11-13, 19-21, 25, 29-31; Feb. 1, 2, 7-16, 23, 28; Mar. 6-8, 29; Apr. 2, 5; Nov. 13, 25, 26; Dec. 5-7, 16, 17, 21, 23, 25-31.	June 7, 8; July 15-17; Aug. 3, 20-22; Sept. 5, 7.			

NORTH CAROLINA.

Central District: VANCE COUNTY. Station: HENDERSON.

ENOCH POWELL, Observer.

[Established by U. S. Weather Bureau in June, 1893. Latitude, 36° 20' N. Longitude, 78° 23' W. Elevation, 460 feet.]

Henderson is located in the central part of Vance County, on the highest ridge between the Tar River on the south and the Roanoke River due north. The Tar is 14 miles distant, the Roanoke 22 miles; there are no other bodies of water in the vicinity, except small creeks in the southern and western part of the town.

No change has been made in the positions of the instruments since the establishment of the station. The thermometers are exposed above sod, in a standard Weather Bureau shelter. There are some large shade trees in the front yard, but none immediately overshadowing the shelter. The elevation of the thermometers above the ground is 4½ feet. The rain gage is 45 feet from the dwelling and 22 feet from a small outhouse; the top of the gage is 5 feet above the ground.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	N.
December.....	41	51	73	31	6	44	36	3.2	8	3.2	5.6	2.2	8.5	N.
January.....	39	48	72	30	4	43	36	3.4	9	1.1	2.2	2.2	7.0	N.
February.....	39	48	73	30	2	45	30	4.9	9	6.8	0.7	6.9	12.0	SW.
Winter mean.....	40	49		30				11.5	26	11.1	8.5	11.3		N.
March.....	51	61	88	40	18	57	45	5.0	11	2.9	4.7	0.7	2.0	SW.
April.....	57	68	98	46	26	63	32	4.5	10	2.3	6.1	T.	0.5	NW.
May.....	68	79	98	57	38	74	65	4.5	12	2.9	8.4	0.0	0.0	SW.
Spring mean.....	59	69		48				14.0	33	8.1	19.2	0.7		SW.
June.....	75	86	100	65	43	77	71	4.0	10	4.8	3.9	0.0	0.0	SW.
July.....	79	89	101	69	55	80	77	5.6	11	2.3	6.4	0.0	0.0	SW.
August.....	78	88	104	68	54	81	76	5.1	11	3.7	9.2	0.0	0.0	NE.
Summer mean.....	77	88		67				14.7	32	10.8	19.5	0.0		SW.
September.....	72	83	103	62	42	77	69	3.7	8	6.0	7.8	0.0	0.0	N.
October.....	60	71	92	50	29	65	56	3.6	7	1.6	3.4	T.	T.	N.
November.....	50	60	80	40	17	55	43	2.7	7	3.8	1.3	0.2	1.0	N.
Fall mean.....	61	71		51				10.0	22	11.4	12.5	0.2		N.
Annual mean.....	59	69	104	49	2			50.2	113	41.4	59.7	12.2	12.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 2, 25, 26, 28; Feb. 2, 5, 6, 16, 24-26; Mar. 27, 28; Nov. 30, 31; Dec. 28-31.	June 11-13, 23, 24, 28, 29; July 12, 13, 15, 21; Aug. 9, 10; Sept. 10.	1900	Jan. 1-5, 26, 29-31; Feb. 1-3, 18-21, 25-28; Mar. 17, 18, 22; Dec. 11, 15-17.	July 5, 8-16, 18-22; Aug. 8-13, 15, 16, 19, 20, 26, 28; Sept. 9-12.
1895	Jan. 1-5, 13-15, 25; Feb. 3-15, 17-20; Mar. 17; Nov. 21; Dec. 4, 6, 10, 11, 13, 14.	May 30, 31; June 1-5, 15, 21; July 17-19; Aug. 11, 12, 29, 30; Sept. 18-26.	1901	Jan. 4, 6, 18-20, 29-31; Feb. 1, 2, 5-7, 20-25; Nov. 16, 18, 19, 21, 27, 29; Dec. 5-8, 15-23.	July 1, 2, 4, 6, 30.
1896	Jan. 4-7, 15, 16; Feb. 17-22, 26; Dec. 1-5, 21, 22, 24-26, 28.	Apr. 16-18; May 10-12; July 13, 27-30; Aug. 5-11, 14, 16, 23, 24; Sept. 18, 19.	1902	Jan. 2, 4-9, 12-14, 17, 18, 20, 29-31; Feb. 3-6, 9-11, 14-20; Mar. 19; Dec. 9, 24, 26-29.	June 12; July 3-6, 10, 11, 17-20; Aug. 4, 6.
1897	Jan. 6-9, 13, 25-31; Feb. 28; Nov. 24, 25; Dec. 1, 24-26, 28, 29.	June 16, 17, 26, 30; July 3; Aug. 5, 14, 28, 30; Sept. 9-11, 14.	1903	Jan. 8-10, 12-14, 19; Feb. 18-20, 23; Nov. 8, 19, 20, 27-30; Dec. 1-4, 7, 11, 16-19, 26, 27, 30, 31.	May 24; July 3, 4, 26; Aug. 25, 26, 28, 30.
1898	Jan. 1-3, 30; Feb. 1-5, 7, 17, 22, 23; Nov. 26-28; Dec. 9-11, 14-16.	May 3; June 9-12, 28; July 2-4.			
1899	Jan. 1-3, 8, 11, 12, 19-21, 28-31; Feb. 1, 2, 8-16; Mar. 7, 8; Dec. 5, 7, 16, 26-31.	June 7, 8; Aug. 5, 20; Sept. 5, 6, 8.			

NORTH CAROLINA.

Eastern District: HALIFAX COUNTY. Station: WELDON.

H. S. S. COOPER, Observer.

[Established by Professor Kerr, State geologist, in February, 1872; made a cotton region station of the Weather Bureau in April, 1882. Latitude, 36° 24' N. Longitude, 77° 32' W. Elevation, 81 feet.]

This station is situated in the northern portion of the eastern district, not far from the Virginia boundary line, on the Roanoke River, about 80 miles above its point of entry into Albemarle Sound. The surrounding country is level and fairly well forested, especially to the south.

The instruments are now situated near the center of the town, about 30 feet in the rear of the dwelling of the observer, in an open yard over sod. The shelter is of the standard Weather Bureau pattern and the thermometers are 5½ feet above the ground. The rain gage is 8 feet from the shelter; the top of the gage is 5 feet above the ground.

The mean temperatures were obtained from the daily extremes.

Observations were made by Mr. T. A. Clark for an unbroken period of twenty-seven years, from the date of the establishment of the station to March, 1899.

Tabulated data are for the period of observation, February 1, 1872, to December 31, 1903, nearly thirty-two years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	41	52	77	31	- 5	50	32	3.2	8	2.7	1.7	2.0	9.0	NW.
January.....	39	49	75	30	- 9	50	28	3.6	10	4.6	3.8	2.3	6.0	W.
February.....	42	50	81	31	- 3	51	31	3.6	10	1.8	4.9	3.7	5.5	S.
Winter mean.....	41	50		31				10.4	28	9.1	10.4	8.0		S.
March.....	48	59	88	39	10	56	40	4.1	12	1.6	8.3	0.1	1.0	S.
April.....	57	68	94	46	27	64	52	3.6	10	3.2	3.3	0.1	1.5	S.
May.....	68	79	100	57	34	78	62	3.5	12	2.3	9.3	0.0	0.0	S.
Spring mean.....	58	69		47				11.2	34	7.1	20.9	0.2		S.
June.....	76	86	103	65	44	79	71	4.1	11	1.4	4.1	0.0	0.0	S.
July.....	79	89	107	69	52	84	74	5.3	12	3.9	5.8	0.0	0.0	S.
August.....	77	88	107	68	49	82	72	5.1	12	5.1	8.8	0.0	0.0	S.
Summer mean.....	77	88		67				14.5	35	10.4	18.7	0.0		S.
September.....	71	82	97	61	36	78	66	3.9	8	2.1	1.4	0.0	0.0	S.
October.....	59	71	95	48	28	66	53	3.6	8	1.0	6.1	0.0	0.0	N.
November.....	48	60	82	38	16	56	43	2.4	7	0.4	2.1	0.5	6.0	N.
Fall mean.....	59	71		49				9.9	23	3.5	9.6	0.5		N.
Annual mean.....	59	69	107	49	- 9			46.0	120	30.1	59.6	8.7	9.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 3, 13, 26, 28; Feb. 6, 17, 24, 25; Mar. 27, 28; Nov. 26, 29, 30; Dec. 28-30.	May 18; June 12, 23, 24, 29; July 13, 14, 21, 29; Aug. 9.	1900	Jan. 1-6, 27, 28, 30, 31; Feb. 1-4, 18-21, 25-28; Mar. 12, 13, 17; Dec. 11-13, 18-18.	July 5-9, 17-22; Aug. 8-14, 16, 17, 21, 27-29; Sept. 11-13.
1895	Jan. 1, 2, 13-15, 24, 25, Feb. 5-19, 23, 24; Dec. 4, 6, 7, 11, 13-15, 17.	May 31; June 1-4; Aug. 11, 29; July 18-20; Sept. 19-23.	1901	Jan. 4-6, 14, 19-21; Feb. 1, 2, 6-8, 20-22, 24-26, 28; Mar. 6-8; Nov. 18, 28-30; Dec. 6-9, 16-23.	July 1, 2, 29, 30.
1896	Jan. 2, 4-7, 12, 15, 16; Feb. 17-22, 26; Nov. 14, 15; Dec. 1-6, 18, 21, 22, 24-29.	May 10, 11, 16, 18; July 15, 24, 28-30; Aug. 5-13, 23; Sept. 18.	1902	Jan. 4-8, 12-15, 18, 20; Feb. 3-7, 9-15, 19-21; Mar. 19, 20; Dec. 9, 10, 24, 25, 27-29.	July 4-6, 10, 18-20; Aug. 4.
1897	Jan. 7, 9, 12, 13, 20, 25-31; Feb. 28, Nov. 19, 25; Dec. 1, 24, 25, 29.	June 15-17, 30; July 1, 3; Aug. 5, 14, 15; Sept. 11, 14.	1903	Jan. 9-11, 13-15, 19, 20; Feb. 18-21, 23, 24, 26; Nov. 8, 9, 19, 20, 27-30; Dec. 1, 4, 5, 7-9, 11-20, 23, 24, 27-31.	July 2-4, 9-11, 25, 26, 29, 30; Aug. 10, 23-29.
1898	Jan. 2-4, 28; Feb. 1-4, 7, 8, 17, 23; Mar. 1; Nov. 23, 28, Dec. 8-10, 14-17.	June 12-15, 25-28; July 2-4, 19; Aug. 25, 26.			
1899	Jan. 2-4, 9-12, 20, 21, 28, 30, 31; Feb. 1-3, 9-16; Mar. 7, 8; Dec. 22, 23, 26-31.	June 8, 9; July 17; Aug. 6; Sept. 7.			

NORTH CAROLINA.

Mountain Section: MITCHELL COUNTY. Station: LINVILLE.

C. TEAL, Observer.

[Established by the U. S. Weather Bureau in October, 1891. Latitude, 36° 5' N. Longitude, 81° 51' W. Elevation, 3,800 feet.]

This station is situated in the heart of the mountains near the northwestern corner of the State, at the point where the distance between the Blue Ridge and the main western chain contracts to its narrowest dimensions. The region is particularly rugged in character, the general elevation of the plateau being over 3,000 feet; the surrounding mountain peaks are numerous and very high. Grandfather Mountain towers 5,987 feet above sea level.

The thermometers are exposed in a louvered shelter, 3 feet square, which is attached to the north side of a drug store; the thermometers are elevated about 5 feet above the sod; the rain gage is in the rear of the building in a free space; the top of the gage is 4 feet 4 inches above the ground. No change of observer or in the position of the instruments has occurred.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 6, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.		Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	32	42	60	23	- 7	37	27	5.7	8	3.9	3.4	5.4	6.0	
January.....	31	41	61	22	-15	36	28	3.4	7	1.7	4.4	5.4	4.5	
February.....	30	40	63	20	-15	38	20	5.3	8	8.9	0.9	7.0	10.0	
Winter mean.....	31	41		22				14.4	23	14.5	8.7	17.8		
March.....	40	50	75	31	- 4	45	36	6.1	11	3.9	2.7	3.6	4.0	
April.....	46	57	79	35	15	51	42	4.6	9	2.3	3.0	2.0	7.0	
May.....	58	69	83	46	26	62	52	3.7	9	4.2	2.6	0.0	0.0	
Spring mean.....	48	59		37				14.4	29	10.4	9.3	5.6		
June.....	63	73	83	54	33	65	58	5.3	12	7.5	4.6	0.0	0.0	
July.....	66	76	89	57	38	68	64	6.1	12	3.7	9.3	0.0	0.0	
August.....	65	75	85	56	38	68	64	5.2	10	3.0	8.5	0.0	0.0	
Summer mean.....	65	75		56				16.6	34	14.2	22.4	0.0		
September.....	59	70	82	49	27	63	56	5.6	6	7.1	9.6	0.0	0.0	
October.....	49	60	74	37	14	54	44	5.3	5	3.9	18.5	0.2	2.0	
November.....	40	51	67	29	0	45	33	3.9	7	3.6	2.5	1.2	4.0	
Fall mean.....	49	60		38				14.8	18	14.6	30.6	1.4		
Annual mean.....	48	59	89	38	-15			60.2	104	53.7	11.0	24.8	10.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 80° or above.	Year.	Minimum below 10°.	Maximum 80° or above.
1895	Jan. 1, 5, 6, 12-14; Feb. 1, 3, 6-11, 13-15, 18, 24, 25; Dec. 4, 6, 14, 29.	May 30, 31; June 1-4; July 15; Sept. 21, 22.	1900	Jan. 1, 2, 4, 5, 26, 28-31; Feb. 1, 2, 17-19, 25-27; Mar. 4; Dec. 22.	July 5-7, 14, 16-19; Aug. 6-12, 15-19; Sept. 10.
1896	Jan. 4, 5; Feb. 18, 20-22; Dec. 25.	May 19; July 28-31; Aug. 4-7, 12, 13, 23; Sept. 18.	1901	Jan. 18, 20, 25, 26; Feb. 19, 20, 24, 25; Mar. 6; Nov. 19; Dec. 15-22.	June 23, 24; July 1-3, 11, 23-28, 30.
1897	Jan. 6, 7, 26-31; Feb. 28; Dec. 24.	July 3; Aug. 4; Sept. 11, 15, 16.	1902	Jan. 3-6, 14; Feb. 3-6, 8, 9, 11, 13, 18; Mar. 18, 19; Dec. 25-28.	June 10, 11; July 2-7, 9, 17-19; Aug. 9.
1898	Jan. 2, 3; Feb. 1-5, 7; Dec. 14, 15.	May 21; June 9-11, 25, 30; July 1, 2, 3, 17, 20.	1903	Jan. 7-9, 12-14, 19, 20; Feb. 17-20; Nov. 8, 19, 20; Dec. 1, 3, 7, 12, 16, 18, 19, 26, 27.	May 23, 24; July 3, 10, 18, 29; Aug. 22, 24, 25, 28; Sept. 3.
1899	Jan. 1, 2, 7, 8; Feb. 8-13, 15; Mar. 7, 8; Dec. 5, 16, 26, 27, 29-31.	June 7-9, 22, 23; July 13-17; Aug. 2-5, 13, 19-22, 24; Sept. 6.			

NORTH CAROLINA.

Western District: CALDWELL COUNTY. Station: LENOIR.

H. C. MARTIN, Observer.

[Established by the Smithsonian Institution in August, 1871. Latitude, 35° 38' N. Longitude, 81° 30' W. Elevation, 1,186 feet.]

Lenoir is situated on the southeastern slopes of the Warrior Mountains, which reach an elevation of 2,500 feet, and are 6 miles northwest; there are also somewhat lesser hills southeast of the city which lies in the valley of the Lower Creek; the greatest extent of the valley is from southwest to northeast, with higher land in the northeast.

The instruments are located at the residence of the observer on West Main street. The shelter is of the standard pattern; the bottom of the shelter is 4 feet above the ground, giving the thermometers an elevation of about 5 feet.

The rain gage is placed on posts at the height of 5 feet above the ground and 5 feet south of the instrument shelter. There are no obstructions of any kind within 30 feet. The present location of instruments dates from 1900 only.

Prior to November, 1900, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; since that time from the daily extremes.

Continuous observations were made by Dr. and Mrs. R. L. Beal from August, 1871, to November, 1899. In November, 1900, the instrumental equipment was changed to maximum and minimum thermometers. The period of observation is for about thirty-one years, extending from August, 1871, to December, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	38	49	70	31	- 6	49	29	3.8	6	3.6	8.4	1.2	3.0	W.
January.....	37	46	72	30	-15	46	27	4.1	6	2.6	3.7	2.2	5.0	W.
February.....	40	48	74	31	- 8	49	30	4.5	7	3.4	1.7	3.3	9.0	NE.
Winter mean.....	38	48	.....	31	.....	.....	.....	12.4	19	9.6	13.8	6.7	.....	W.
March.....	46	56	83	38	8	53	35	4.6	8	6.3	6.8	0.1	0.5	SW.
April.....	56	66	88	46	19	61	52	3.8	6	5.2	9.6	T.	T.	W.
May.....	65	76	96	57	35	71	56	4.7	8	3.1	10.4	0.0	0.0	W.
Spring mean.....	56	66	.....	47	.....	.....	.....	13.1	22	14.6	26.8	0.1	.....	W.
June.....	72	81	96	65	42	75	64	4.6	9	2.0	11.7	0.0	0.0	W.
July.....	75	83	98	68	51	78	71	4.9	10	4.7	1.6	0	0.0	W.
August.....	74	82	96	66	49	77	70	5.9	9	6.6	21.8	0.0	0.0	SW.
Summer mean.....	74	82	.....	66	.....	.....	.....	15.4	28	13.3	35.1	0.0	.....	W.
September.....	66	77	93	59	32	71	55	4.5	6	2.0	3.9	0.0	9.0	NE.
October.....	56	67	84	46	28	66	51	3.4	5	1.5	0.9	0.0	0.0	NE.
November.....	46	57	83	37	12	53	40	3.2	5	0.5	0.7	0.1	0.1	W.
Fall mean.....	56	67	.....	47	.....	.....	.....	11.1	16	4.0	5.5	0.1	.....	NE.
Annual mean.....	56	66	98	48	-15	.....	.....	52.0	85	41.5	81.2	6.9	9.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 90° or above.	Year.	Minimum below 25°.	Maximum 90° or above.
1894	Jan. 2, 13, 26-28, 31; Feb. 6, 16, 17, 25, 27; Mar. 27, 28, 30; Nov. 12, 29, 30; Dec. 5-7, 15, 18, 21, 28-31.	June 12, 29; Aug. 10.	1900	No record to November. Nov. 9, 10, 12, 14, 15; Dec. 1, 5, 6, 10-12, 15-19, 25, 26.	No record.
1895	Jan. 1, 4, 5, 13-15; Feb. 5-15, 18-20, 23-25; Mar. 6; Nov. 21, 28, 29; Dec. 5-7, 11, 14, 15.	May 31; June 1-4.	1901	Jan. 3-8, 13, 14, 17-21, 23, 25-30; Feb. 1, 5, 6, 14, 15, 19-28; Mar. 1, 2, 5-8, 16, 21; Nov. 5-8, 10-21, 26-30; Dec. 1, 5, 6, 9-11, 13-24, 29-31.	May 1, 2, 7-24; June 23-25, 29, 30; July 1-6, 20, 22-30; Aug. 1, 3-7, 10; Sept. 15.
1896	Jan. 2, 4-7, 11, 12, 15, 27-29; Feb. 12, 15, 17-22; Mar. 5, 13, 14, 21, 25; Dec. 3-5, 17, 21, 24-28.	July 30; Aug. 9, 12.	1902	Jan. 1, 3-17, 19, 20, 22, 23; Feb. 2-14, 16-19, 22; Mar. 2, 9, 18-20; Dec. 5-10, 23-31.	May 3, 5, 6, 20, 24; June 5, 7, 8, 10-13, 27, 29, 30; July 1-10, 16-19; Aug. 3-6, 8-11, 13, 14, 18-21, 31; Sept. 1, 2, 7.
1897	Jan. 6, 7-9, 16, 19, 26, 28-31; Feb. 4, 18; Nov. 18, 24; Dec. 1, 25, 27-29.	June 13, 16, 30; July 3; Sept. 10, 11, 14, 16.	1903	Jan. 1, 6-9, 11-15, 19-21, 30; Feb. 5, 6, 8, 10, 15, 25; Mar. 1, 2; Apr. 5, 6; Nov. 8, 18-20, 26-30; Dec. 1-3, 8, 10, 11, 13-20, 26, 30, 31.	May 21-24; July 1-5, 8-10, 17, 18, 22, 25-30; Aug. 23-29; Sept. 5.
1898	Jan. 1-4, 16, 17, 28; Feb. 1-8, 17, 22, 23, 26; Nov. 25; Dec. 6, 9-11, 14-16, 26.	June 9, 10; July 2, 3.			
1899	Jan. 1, 2, 7-9, 20, 21, 29, 30; Feb. 8-15; Mar. 7, 8; Nov. 7.	July 13, 15, 16; Aug. 3-5, 21, 22, 25.			

NORTH CAROLINA.

Central District: RANDOLPH COUNTY. Station: SOAPSTONE MOUNT.

H. L. KIMREY, Observer.

[Established by the Signal Service in March, 1889. Latitude, 35° 46' N. Longitude, 79° 37' W. Elevation, 900 feet.]

This county is one of the most hilly of the central district, with elevations approaching the dignity of mountains in the west and southwest. The village is located about 8 miles southwest of Liberty, and the farm at which the instruments are located is on a ridge sloping toward the southwest, between the waters of the Deep River and its tributary creeks, Mount Pleasant and Sandy. The thermometers are exposed in a standard shelter over sod; the shelter is placed about 30 feet east of the house. The thermometers are 4½ feet above the ground. The rain gage is 5 feet north; its top is 4 feet above ground. There is a rail fence near, but nothing obstructs the exposure of either thermometers or rain gage.

The mean temperatures were obtained from the daily extremes.

Tabulated data are for the period of observation, January 1, 1889, to December 31, 1903—about fifteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	40	53	75	27	- 5	47	36	3.4	7	3.2	6.0	2.5	10.5	SW
January.....	38	50	71	25	- 9	44	29	3.5	8	3.9	2.2	3.2	7.0	SW
February.....	39	50	74	25	-16	48	29	4.8	9	4.0	1.6	5.8	13.0	SW
Winter mean.....	39	51	.....	26	.....	.....	.....	11.7	24	11.1	9.8	11.5	.....	SW
March.....	48	63	86	37	6	54	41	4.9	10	1.8	4.1	0.7	2.0	SW
April.....	56	69	95	43	22	61	49	3.8	8	1.5	6.0	T.	T.	SW
May.....	66	80	98	53	32	71	60	4.3	10	2.6	7.2	0.0	0.0	SW
Spring mean.....	57	71	.....	44	.....	.....	.....	13.0	28	5.9	17.3	0.7	.....	SW
June.....	74	86	100	61	35	76	70	4.1	11	1.7	5.8	0.0	0.0	SW
July.....	77	89	99	65	49	79	72	5.7	11	4.9	7.6	0.0	0.0	SW
August.....	75	88	101	64	43	79	71	5.1	8	2.6	14.7	0.0	0.0	SW
Summer mean.....	75	88	.....	63	.....	.....	.....	14.9	30	9.2	28.1	0.0	.....	SW
September.....	69	82	100	56	32	76	67	4.0	6	5.1	4.5	0.0	0.0	SW
October.....	57	71	89	44	22	63	52	3.6	6	7.4	1.0	T.	T.	SW
November.....	47	60	85	34	12	53	37	3.1	5	2.2	1.0	T.	T.	SW
Fall mean.....	58	71	.....	45	.....	.....	.....	10.7	17	14.7	6.5	T.	.....	SW
Annual mean.....	57	70	101	44	-16	.....	.....	50.3	99	40.9	61.7	12.2	13.0	SW

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 2, 3, 26-28; Feb. 5-7, 25-28; Mar. 27, 28, 30, 31; Nov. 11-13, 29, 30; Dec. 7, 15, 20, 23, 27-31.	June 12, 23, 24, 28, 29; July 13; Aug. 10; Sept. 10.	1900	Jan. 1-9, 13, 14, 22, 23, 26, 27, 29-31; Feb. 1-4, 14, 15, 17-20, 25-28; Mar. 4, 11, 15, 16, 20; Apr. 1, 5; Nov. 10, 13, 15, 17, 30; Dec. 1, 2, 6, 7, 10-13, 15-20, 25-27.	July 5-8, 15-21; Aug. 4, 7-13, 15, 16, 20, 28; Sept. 10, 12, 23.
1895	Jan. 1, 2, 4-6, 12-15, 23-25; Feb. 3-25; Mar. 17, 18, 22, 23; Oct. 10, 11; Nov. 21, 22, 27-29; Dec. 4-7, 13-18, 30, 31.	May 31; June 1-4; July 18, 19; Sept. 12, 13, 18-27.	1901	Jan. 4-9, 13, 14, 19-21, 25, 26, 28, 29, 31; Feb. 1, 2, 5-7, 13-16, 20-25, 27, 28; Mar. 6-8, 18; Nov. 7, 9, 15, 16, 18-22, 26-29; Dec. 5-8, 12, 16-22, 26.	July 14, 30.
1896	Jan. 1, 2, 4-9, 12, 14-16, 21, 27-29; Feb. 10, 12, 15, 17-23; Apr. 8; Oct. 19; Nov. 14, 15; Dec. 1-7, 9, 10, 12, 17-29.	Apr. 18; May 1; July 27, 28, 30; Aug. 5, 6, 8-13, 16, 23; Sept. 18, 19.	1902	Jan. 4-9, 12-15, 17, 18, 20, 23; Feb. 3-20, 23; Mar. 19, 20; Nov. 28; Dec. 9, 10, 18, 24, 26-28, 31.	June 12, 30; July 3-6, 10, 17-20; Aug. 4, 8, 11.
1897	Jan. (incomplete) 5-10; Feb. 26-28; Mar. 26, 28, 29; Nov. 18-20, 24, 25, 30; Dec. 1, 7, 23-27, 29, 30.	June 16, 17, 30; July 1-3; Sept. 14.	1903	Jan. 9, 10, 13-15, 19; Feb. 6, 9, 10, 17-24, 26; Mar. 2; Oct. 28; Nov. 7, 8, 19, 20, 23, 27-30; Dec. 1-4, 7, 11, 12, 14, 17-19, 21.	May 22, 23; July 2, 3, 27; Aug. 25, 28.
1898	Jan. 1-4, 6, 7, 17, 24; Feb. 1-9, 14, 16, 17, 22-25, 27; Mar. 1, 5; Apr. 6, 7; Nov. 25, 27, 28; Dec. 6-16, 25, 26, 28, 29.	May 21; June 9-13, 25, 26, 28; July 1-4, 17, 19, 20.			
1899	Jan. 1-3, 7-12, 20-22, 26, 28-31; Feb. 1, 2, 8-16, 24, 25, 28; Mar. 6-9, 30; Apr. 5; Nov. 5, 25; Dec. 5-9, 16, 17, 21-23, 26-31.	June 4, 7-9, 15, 24; July 13, 15-17, 29, 30; Aug. 3-6, 11, 13, 20-23; Sept. 4, 6, 7.			

NORTH CAROLINA.

Central District: ORANGE COUNTY. Station: CHAPEL HILL.

Prof. J. W. GORE, Observer.

[Established in 1820. Latitude, 35° 54' N. Longitude, 79° 4' W. Elevation, 500 feet.]

This station is situated in the southern part of the county, on the south side of the village of Chapel Hill, and on the western side of the campus of the University of North Carolina.

The instrument shelter is somewhat larger than the usual Weather Bureau shelter, but is constructed in the same manner with louvered sides and double top. The bottom of the shelter is 4 feet above the ground. The shelter is located over sod, 60 feet north of a dwelling and 30 feet from a small single-story kitchen. The rain gage is 50 feet from the nearest building; the top is about 2 feet above the ground.

The mean temperatures were obtained from the daily extremes.

Tabulated data are for about forty-seven years, and are included within the period of observation 1820-1903. The record, however, is much broken. Observations were taken by the following persons: J. Caldwell, Jas. Phillips, D. S. Patrick, Mrs. Cornelia P. Spencer, W. B. Phillips, and F. P. Venable. Since 1883 Prof. J. W. Gore, a member of the faculty of the University of North Carolina, has acted as observer.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	42	53	78	31	—1	53	34	3.6	7	2.8	4.6	2.2	11.0	W.
January.....	40	50	77	29	—1	51	29	4.1	8	6.2	2.4	2.9	8.0	W.
February.....	43	51	79	31	—1	57	31	4.0	10	3.2	1.5	4.6	12.0	W.
Winter mean.....	42	51		30				11.7	25	12.2	8.5	9.7		W.
March.....	49	61	88	39	13	57	43	4.5	10	2.7	3.7	0.2	1.0	SW.
April.....	59	70	97	47	27	68	52	3.8	8	3.2	5.9	0.1	1.0	SW.
May.....	68	81	98	57	34	75	63	4.4	10	3.4	11.4	0.0	0.0	W.
Spring mean.....	59	71		48				12.7	28	9.3	21.0	0.3		SW.
June.....	76	88	104	65	41	81	72	3.5	11	6.1	5.7	0.0	0.0	W.
July.....	79	92	107	68	52	84	74	4.8	10	3.7	6.1	0.0	0.0	SW.
August.....	77	91	105	68	52	84	72	5.0	10	0.8	11.2	0.0	0.0	SW.
Summer mean.....	77	90		67				13.3	29	10.6	23.0	0.0		SW.
September.....	72	84	102	61	35	78	68	3.7	6	2.0	4.8	0.0	0.0	W.
October.....	60	72	92	48	28	68	56	3.4	6	0.3	2.1	0.0	0.0	W.
November.....	50	62	85	39	13	60	44	2.8	6	4.4	1.9	T.	T.	W.
Fall mean.....	61	73		49				9.9	18	6.7	8.8	T.		W.
Annual mean.....	60	71	107	49	—6			47.6	100	38.8	61.3	10.0	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 12, 13, 25-28; Feb. 4-6, 15, 16, 24, 25; Mar. 26, 27; Nov. 28-30; Dec. 27-31.	June 9-12, 15, 16, 21-23, 25-28; July 12-15, 28, 29.	1900	Jan. 1-5, 25-27, 30, 31; Feb. 1-3, 18-21, 25-28; Dec. 11, 12, 15-18.	June 11, 12, 14, 15, 29, 30; July 5-11, 15-22; Aug. 5-30; Sept. 2-12.
1895	Jan. 3-5, 12-14; Feb. 2-18; Mar. 16; Nov. 21; Dec. 3-5, 10-14.	May 30, 31; June 1-5, 25, 26; July 17-21; Aug. 10-12, 29, 30; Sept. 18-26.	1901	Jan. 4, 5, 18-21; Feb. 1, 2, 6, 7, 13, 14, 20-26; Mar. 6-8; Nov. 29, 30; Dec. 6-8, 16-23.	June 23, 25, 29; July 1-5, 23-26, 30, 31; Aug. 16-18.
1896	Jan. 4-7, 14, 15; Feb. 16-22; Dec. 1-6, 21-29.	Apr. 18, 20; May 10-12; July 27-30; Aug. 4-14; Sept. 15, 18, 19.	1902	Jan. 4-8, 12-15; Feb. 3-7, 9-12, 14-16, 18-20; Mar. 19, 20; Dec. 9, 10, 26-29.	June 11-13; July 1-12, 15-20, 25, 26, 28, 29; Aug. 1-8.
1897	Jan. 7-10, 13, 14, 25-31; Feb. 1, 28; Nov. 24, 25; Dec. 1, 2, 24, 25, 28-30.	June 15-17, 24-26; July 1-4; Sept. 10-12.	1903	Jan. 9, 10, 13-15; Feb. 17-21; Nov. 19, 20, 27, 28; Dec. 3, 4, 18, 19, 27, 28.	May 22, 23; July and Aug. missing.
1898	Jan. 2-4, 5; Feb. 1-8, 16-18, 22-24; Nov. 25-28; Dec. 8-11, 14-16.	June 10, 12-14, 25-27.			
1899	Jan. 1-3, 8, 9, 11, 12, 20, 21, 28-31; Feb. 8-16; Mar. 7-9; Dec. 26-31.	June 5-9; July 13, 14, 16, 17; Aug. 3-5, 20-23; Sept. 6-9.			

NORTH CAROLINA.

Central District: WAKE COUNTY. Station: RALEIGH.

C. F. VON HERRMANN, Section Director.

[Established by Signal Service in January, 1887. Latitude, 35° 45' N. Longitude, 78° 37' W. Elevation, 343 feet.]

The country surrounding the station is gently rolling, with no pronounced elevations of any kind in the vicinity. Much of the country is still covered with forests. From September, 1887, to October, 1896, the station was located in the agricultural building, corner Edenton and Halifax streets, with roof exposures. On October 1, 1896, the station was moved to its present location in the central part of the city in the Fisher Building, corner of Fayetteville street and Exchange place.

The thermometers are exposed in a standard instrument shelter on roof, bottom of shelter 10 feet above roof, and thermometers 71 feet from the ground. The rain gage, tipping bucket pattern, is 6 feet southwest of shelter on same platform, and top of gage is 3.4 feet above platform. The present exposure of instruments is quite unobstructed by any surrounding buildings.

Tabulated data are from the following periods of observation: Humidity, fifteen years; sunshine, seven years, November 1, 1896, to December 31, 1903. Remainder of data is from the full period of observation, seventeen years, January 1, 1887, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.		
												Average depth.	Greatest depth in 24 hours.								
																				° F.	
December.....	43	52	75	34	9	53	38	2.9	9	2.6	1.2	1.5	8.4	79	2.17	67	2.29	175	58	N.	
January.....	41	50	76	32	2	52	31	3.6	11	2.2	4.0	2.3	11.0	80	1.97	68	2.16	160	51	SW.	
February.....	43	52	80	34	-2	53	33	4.4	11	4.4	5.1	4.1	11.5	79	2.09	68	2.32	169	56	SW.	
Winter mean.....	42	51	.....	33	.....	.....	.....	10.9	31	9.2	10.3	7.9	.....	79	2.08	68	2.26	168	55	SW.
March.....	50	60	89	40	16	57	45	4.3	13	4.8	7.2	0.3	2.0	79	2.60	66	2.88	198	53	SW.	
April.....	58	69	95	48	30	64	53	3.6	10	4.7	3.0	0.3	3.5	74	3.47	61	3.62	250	64	SW.	
May.....	68	79	98	58	38	74	64	5.1	12	2.8	9.2	0.0	0.0	77	5.04	66	5.27	284	65	SW.	
Spring mean.....	59	69	.....	49	.....	.....	.....	13.0	35	12.3	19.4	0.6	.....	77	3.70	64	3.92	244	61	SW.
June.....	76	86	101	66	46	79	72	4.6	12	3.4	4.1	0.0	0.0	78	6.43	70	6.76	293	67	SW.	
July.....	79	88	103	69	54	81	74	6.3	14	4.9	11.0	0.0	0.0	80	7.48	74	7.60	299	67	SW.	
August.....	77	86	99	68	52	82	73	5.8	13	1.9	10.4	0.0	0.0	85	7.46	76	7.57	271	65	SW.	
Summer mean.....	77	87	.....	68	.....	.....	.....	16.7	39	10.2	25.5	0.0	.....	81	7.12	73	7.31	288	66	SW.
September.....	71	81	100	62	39	76	68	3.2	8	0.7	1.8	0.0	0.0	83	6.01	73	6.21	271	73	N.E.	
October.....	60	70	89	50	31	66	56	3.8	9	2.6	2.6	T.	T.	81	3.93	71	4.22	220	63	N.	
November.....	51	60	82	41	17	56	45	2.3	8	3.4	3.7	0.1	2.0	81	2.76	69	3.02	187	61	N.	
Fall mean.....	61	70	.....	51	.....	.....	.....	9.3	25	6.7	8.1	0.1	.....	82	4.23	71	4.48	226	66	N.
Annual mean.....	60	69	103	50	-2	.....	.....	49.9	130	38.4	63.3	8.6	11.5	80	4.29	69	4.49	231	62	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Feb. 25, 26; Mar. 27, 28; Nov. 29, 30; Dec. 28-30.	June 11, 12; Aug. 9.	1900	Jan. 1-4, 20-31; Feb. 1, 2, 17-20, 25-28; Dec. 15-17.	July 4-8, 15, 16, 18-22; Aug. 7-10, 11-13, 15, 16, 18-20, 26-28.
1895	Jan. 1, 2, 4, 5, 13, 14; Feb. 5-16; Dec. 13, 14.	May 30, 31; June 1-4; July 18, 19; Sept. 19-23, 25.	1901	Jan. 18-20; Feb. 6, 7, 23-25; Mar. 6, 7; Dec. 15-22.	July 1-3, 24, 25, 29, 30.
1896	Jan. 4-7; Feb. 17-22; Dec. 1-3, 24-26.	May 11, 12; July 28, 29; Aug. 7-11; Sept. 18.	1902	Jan. 2-6, 12-14; Feb. 3-6, 8-11, 18-20; Dec. 9, 10, 26-28.	July 3-6, 17-20; Aug. 3, 4.
1897	Jan. 7, 8, 26-31; Dec. 24, 25.	June 17, 18; Sept. 10, 14.	1903	Jan. 8-10, 12-14; Feb. 17-20; Nov. 19, 20, 27, 28; Dec. 18, 19, 26, 27.	May 23, 24; July 3, 4, 26, 27; Aug. 24-29.
1898	Jan. 1-4; Feb. 1-4; Dec. 9, 10, 13-16.	June 9, 10, 26-28; July 1, 2, 19, 20.			
1899	Jan. 1-3, 28, 29; Feb. 1, 2, 8-15; Mar. 7, 8; Dec. 26, 27, 29-31.	June 7, 8; Aug. 3-5.			

NORTH CAROLINA.

Eastern District: EDGECOMBE COUNTY. Station: TARBORO.

E. V. ZOELLER, Observer.

[Established by the Smithsonian Institute in August, 1871, with R. H. Austin and Thos. Norfleet, observers; Mr. E. V. Zoeller has been observer since 1887. Latitude, 35° 50' N. Longitude, 77° 35' W. Elevation, 50 feet.]

Tarboro is located immediately on the Tar River on a nearly level plain; there are a few moderate depressions in the town.

The shelter, of standard pattern, is located on the south side of the observer's dwelling house, about 15 feet from its nearest point, at the top of a slight slope southward, which extends for about 100 feet to a small depression conveying a stream of water. This slope is cultivated during the summer. The thermometers are 6 feet above the ground. The door of the shelter opens toward the north. The rain gage is about 5 feet north of the shelter; its top is 2½ feet above the ground.

The mean temperatures were obtained from the daily extremes.

Tabulated data are for eighteen years and are included within the period August 1, 1871, to December 31, 1903. The record is not continuous, being somewhat broken between the years 1875 and 1895.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	43	55	79	30	2	51	35	3.6	8	3.2	3.8	1.7	8.0	N.
January.....	41	52	78	29	— 1	53	31	4.0	8	4.4	3.6	1.9	6.5	NW.
February.....	43	53	76	30	— 2	54	33	4.0	9	5.4	3.6	3.1	8.0	W.
Winter mean.....	42	53	.....	30	.....	.....	.....	11.6	25	13.0	11.0	6.7	.....	NW.
March.....	51	65	91	40	13	60	42	3.7	9	2.7	3.9	0.1	0.8	S.
April.....	59	72	97	46	26	64	55	3.4	8	3.3	3.0	0.2	3.0	S.
May.....	69	83	99	56	37	74	66	5.2	10	2.1	5.6	0.0	0.0	S.
Spring mean.....	60	73	.....	47	.....	.....	.....	12.3	27	8.1	12.5	0.3	.....	S.
June.....	76	89	104	65	46	79	73	4.3	10	3.5	3.1	0.0	0.0	E.
July.....	80	92	105	69	48	83	76	6.3	11	2.0	11.6	0.0	0.0	SW.
August.....	78	91	105	68	52	84	74	6.9	11	6.7	22.7	0.0	0.0	S.
Summer mean.....	78	91	.....	67	.....	.....	.....	17.5	32	12.2	37.4	0.0	.....	S.
September.....	72	87	106	61	36	77	67	3.7	5	1.0	2.0	0.0	0.0	NE.
October.....	61	75	93	49	28	67	57	3.9	7	1.1	6.1	0.0	0.0	N.
November.....	51	64	87	38	16	57	46	2.7	7	3.7	1.9	T.	0.5	N.
Fall mean.....	61	75	.....	49	.....	.....	.....	10.3	19	5.8	10.0	T.	.....	N.
Annual mean.....	60	73	106	48	— 2	.....	.....	51.7	103	39.1	70.9	7.0	8.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 3, 13, 28; Feb. 6, 17, 24, 25; Mar. 27; Dec. 28-30.	May 17, 18; June 5, 10-13, 23, 24, 29; July 12-15, 26, 28, 29; Aug. 9, 10; Sept. 9, 10.	1900	Jan. 1-6, 14, 22, 26, 27, 29, 30; Feb. 1-3, 18-20, 25-27; Mar. 4, 13, 17, 22; Nov. 8, 15; Dec. 1, 2, 7, 11-13, 15-18, 22, 26.	May 14, 15; June 10, 12-15, 27, 29, 30; July 2-8, 14-23, 30, 31; Aug. 3-19, 22, 24-29, 31; Sept. 1, 2, 4-13, 27, 28.
1895	Jan. 1, 2, 13-15, 24, 25; Feb. 6-16, 22-25; March missing; Dec. 4-7, 13-15.	May missing; July 17-20, 22, 23; Sept. 8, 13, 18-25.	1901	Jan. 4-6, 14, 19, 20; Feb. 1, 2, 6, 7, 13, 16, 20-22, 24, 25, 27, 28; Mar. 6, 7; Nov. 11, 16, 18, 19, 22, 28, 29; Dec. 7, 8, 16-22.	June 12, 13, 25-30; July 2-7, 24-30; Sept. 14-16.
1896	Jan. 1-7, 10, 14-16, 28; Feb. 17-22; Dec. 1, 3-7, 18, 20, 22, 24-29.	April 17, 18, 20; May 10-12, 18; July 14-16, 24, 25, 28-31; Aug. 2-13, 23, 24; Sept. 18, 19.	1902	Jan. 2, 4-7, 12-15, 20; Feb. 4-7, 9-14, 19, 20; Mar. 19; Dec. 9, 10, 15, 24, 27-29.	May 7; June 5, 9, 12-16, 27, 30; July 1, 2, 4-11, 15, 17-21, 24, 25, 27-31; Aug. 2-7, 10, 22, 31; Sept. 3, 4, 8, 9.
1897	Jan. 6-9, 12, 13, 19, 20, 25-31; Feb. 4, 5, 27, 28; Mar. 1, 29; Nov. 18, 19, 24, 25, 31; Dec. 1, 7, 8, 24, 25, 27-29.	June 1, 2, 13, 15-18, 24-26, 30; July 1, 2, 3, 5; Aug. 1, 5, 13, 14, 28-30; Sept. 9-14, 17.	1903	Jan. 9, 10, 13, 14, 19; Feb. 6, 18-20, 23, 26; Nov. 8, 19, 20, 27-30; Dec. 1, 4, 7, 8, 12, 14, 16-19, 23, 24, 27, 29-31.	May 19-22; July 2-5, 10-12, 23, 26-28; Aug. 5, 9, 10, 23-29.
1898	Jan. 1-4, 27, 28, 30; Feb. 1-5, 7, 8, 10, 17, 22-27; Mar. 1, 6; Nov. 23, 26, 27; Dec. 8-11.	May 20, 21, 30; June 9-14, 25-30; July 1-5, 17-23, 30; Aug. 1-3, 5-9, 24, 25, 31; Sept. 1-6.			
1899	Jan. 1-3, 8-11, 20, 21, 26, 28-30; Feb. 1, 2, 8-16; Mar. 7; Dec. 6-9, 16, 17, 21-23, 26-31.	May 3; June 5-9, 13-15, 21-24, 28, 29; July 5, 12, 13, 15-17, 19-21, 29, 30; Aug. 3-5, 11, 13, 14, 20-23, 28; Sept. 1-4, 6-9, 24, 26.			

NORTH CAROLINA.

Western District: HAYWOOD COUNTY. Station: WAYNESVILLE.

F. LLOYD BAKER, Observer.

[Established by the Weather Bureau in May, 1894. Observers: N. T. Rogers, Cyrus Pyle, Miss Caroline M. Cooper, and Miss Elizabeth F. Briscoe. Latitude, 35° 29' N. Longitude, 82° 58' W. Elevation, 2,756 feet.]

Waynesville is in the heart of the mountains about 30 miles southwest of Asheville. The town itself is on a ridge of considerable elevation running north to south, with deep valleys on either side; all around are mountains which tower high above the town. There are several small creeks flowing in the lower valleys, which unite to form the Richland River. All the mountain slopes are covered with forests.

The instruments are located in the northeastern part of the town. The shelter is of the standard pattern, and is about 75 feet from the house. The thermometers are 8 feet above the ground. The rain gage is 50 feet above the shelter on the slope of the same hill; its top is 2½ feet above the ground. The instruments have been in the positions described for only a few months. During the larger part of the period of observations they were in a similar position in the southeastern part of Waynesville, lower down in the valley, but not at the bottom. The shelter was 100 feet from a three-story dwelling. The mean temperatures were obtained from the daily extremes.

Tabulated data are for about ten years and are included within the period July 1, 1880, to December 31, 1903. The record is quite broken prior to 1894.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	38	48	67	27	- 4	43	31	3.6	7	2.5	9.6	0.8	3.0	SW.
January.....	37	47	69	26	-12	40	33	4.3	7	2.1	4.8	1.9	5.0	SW.
February.....	36	46	69	25	-10	42	27	5.1	7	8.0	1.4	4.1	13.0	W.
Winter mean.....	37	47		26				13.0	21	12.6	15.8	6.8		SW.
March.....	48	58	80	37	2	54	44	6.4	10	4.6	7.1	0.7	3.0	SW.
April.....	52	64	86	40	20	58	46	4.1	9	2.4	6.1	0.5	2.2	SW.
May.....	62	76	90	49	30	67	58	3.7	10	2.8	9.6	T.	T.	SW.
Spring mean.....	54	66		42				14.2	29	9.8	22.8	1.2		SW.
June.....	68	80	91	56	34	70	64	4.4	12	3.6	4.0	0.0	0.0	SW.
July.....	70	82	92	59	45	72	68	4.6	13	3.0	2.9	0.0	0.0	SW.
August.....	70	82	93	58	45	72	68	4.5	11	1.4	10.8	0.0	0.0	SW.
Summer mean.....	69	81		58				13.5	36	8.0	17.7	0.0		SW.
September.....	64	77	90	52	29	68	61	2.4	6	5.6	2.3	0.0	0.0	E.
October.....	54	68	83	40	16	58	49	2.1	5	1.3	0.5	T.	T.	N.
November.....	46	57	80	33	9	54	39	2.5	5	3.4	0.6	0.2	2.5	SW.
Fall mean.....	55	67		42				7.0	16	10.3	3.4	0.2		NE.
Annual mean.....	54	65	93	42	-12	72	27	47.7	102	40.7	59.7	8.2	13.0	SW.

*Also NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 90° or above.	Year.	Minimum below 10°.	Maximum 90° or above.
1894	Dec. 4, 28, 29.	June 29; Aug. 15.	1900	Jan. 2-4, 29; Feb. 1, 17-19, 25.	July 16; Aug. 8, 10, 11.
1895	Jan. 1, 12, 13; Feb. 7-10, 13, 14; Dec. 6, 14.	June 1, 2; July 19.	1901	Feb. 21; Mar. 7; Dec. 16, 18, 20-22.	July 30; Aug. incomplete.
1896	Jan. 4, 5; Feb. 18, 21, 22; Dec. 25.	Aug. 20.	1902	Jan. 4, 13; Feb. 3, 5, 9, 19.	July 3, 31; Aug. 5, 7, 8, 10, 13, 14, 19.
1897	Jan. 26, 28, 31.	June 13; Sept. 15.	1903	Jan. 13; Feb. 17, 18; Nov. 19, 27; Dec. 1, 7, 27.	May 24; Aug. 28.
1898	Jan. 2; Feb. 1-4; Dec. 6, 11, 14, 15.	June 11.			
1899	Jan. incomplete; Feb. 9, 10, 12-14; Mar. 7; Dec. 5, 30, 31.	July 15, 16.			

NORTH CAROLINA.

Mountain Section: BUNCOMBE COUNTY. Station: ASHEVILLE.

R. M. GEDDINGS, Observer.

[Established by the Smithsonian Institution in August, 1857, and changed to a regular Weather Bureau station August 22, 1902. Latitude 35° 36' N. Longitude, 82° 28' W. Elevation, 2,255 feet.]

This station is situated in the heart of the Blue Ridge Mountains, in the western district of North Carolina, on the eastern side of Asheville plateau, through which flows the French Broad River in a general direction from south to north. Just below the city the Swannanoa River, and on the north side the small stream called Beaverdam Creek enters the French Broad River from the east. The average elevation of the plateau is 2,250 feet which is also about the elevation of the crest of the Blue Ridge, about 25 miles south of Asheville.

From August 22, 1902, to May 28, 1903, the station was located in the Dhrumer Building, with the thermometers 72 feet above the ground. The Battery Park Hotel, about 200 yards northwest, rather overshadowed the station.

At present the station is located in the Library Building which is near the eastern limit of the city. The thermometers are exposed in a standard Weather Bureau shelter, 53 feet above the ground. The tipping bucket rain gage is on a platform erected on the roof. The top of the gage is 3.5 feet above the roof, and 45.8 feet above the ground. The mean temperatures since 1867 are from the mean of the maximum and minimum temperatures. The change of elevation of the thermometers from 15 feet to 53 feet above the ground has caused a slight lessening of the extremes since 1902.

Tabulated data are for about 24 years, the period of observation extending from August 1, 1857, to December 31, 1903. The record, however, during this period is much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	39	51	72	29	- 3	51	30	3.0	8	4.1	5.3	1.7	10.0	NW.	
January.....	38	47	70	27	- 9	47	27	3.0	10	2.4	6.2	9.4	7.0	N.	
February.....	40	51	75	30	- 9	49	29	3.7	9	3.8	6.2	3.7	8.2	N.	
Winter mean.....	39	50		29				9.7	27	10.3	17.7	14.8		N.	
March.....	46	57	86	36	9	52	39	4.2	12	1.6	9.4	1.0	3.6	NW.	
April.....	54	67	90	43	22	60	48	3.4	9	1.2	4.3	0.5	2.7	N.	
May.....	63	75	91	50	30	72	59	3.5	11	3.2	1.4	0.0	0.0	N.	
Spring mean.....	54	66		43				11.1	32	6.0	15.1	1.5		N.	
June.....	69	81	94	58	37	77	65	4.1	13	3.0	1.9	0.0	0.0	N.	
July.....	72	82	93	61	49	75	69	4.9	12	4.9	5.1	0.0	0.0	N.	
August.....	71	82	92	60	47	74	68	4.6	11	3.7	6.8	0.0	0.0	N.	
Summer mean.....	71	82		60				13.6	36	11.6	13.8	0.0		N.	
September.....	65	78	95	55	35	71	61	2.9	8	3.1	2.3	0.0	0.0	N.	
October.....	54	68	87	42	22	60	49	2.6	6	2.7	1.2	T.	T.	N.	
November.....	45	59	81	36	13	51	40	2.7	7	0.5	2.7	T.	0.1	NW.	
Fall mean.....	55	68		44				8.2	21	6.3	6.2	T.		N.	
Annual mean.....	55	66	95	44	- 9			42.6	116	34.2	52.8	16.3	10.0	N.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 20°.	Maximum 90° or above.	Year.	Minimum below 20°.	Maximum 90° or above.
1894	Jan. 13, 25-27; Feb. 5, 6, 15, 16, 25, 27; Mar. 26, 27; Nov. 7, 11, 12; Dec. 5, 27-31.	June 12-14, 29; July 13; Aug. 10, 15.	1897	Feb. 27, 28; Mar. 28; Nov. 24; Dec. 24, 25, 29.	July 1, 3, 4, 23; Aug. 29; Sept. 9-11, 14-16.
1895	Jan. 1, 2, 4, 12-15, 22, 25-27; Feb. 5, 7-14; 15-18; Mar. 9; Dec. 3-7, 13-15, 30, 31.	May 31; June 1-4, 20; Sept. 21, 22.	1898	Jan. 1-4; Feb. 1-4, 7, 16, 17, 21, 22; Nov.-Dec. missing.	
1896	Jan. 1-15; Feb. 22; Mar. 12-14, 21; Dec. 1, 3, 21, 24-28.	Apr. 18; July 29-31; Aug. 4, 5, 7, 9, 10, 12, 13, 22, 23; Sept. 18, 19.	1902	Dec. 25-28.	
			1903	Jan. 8, 9, 12-14; Feb. 17-19; Nov. 18-20, 26-30; Dec. 1, 3, 7, 11, 16, 18, 28, 27.	May 24; July 18.

NORTH CAROLINA.

Western District: MACON COUNTY. Station: HIGHLANDS.

HENRY STEWART, Jr., Observer.

[Established by the Signal Service in June, 1889. Latitude, 35° 5' N. Longitude, 83° 25' W. Elevation, 3,817 feet.]

Highlands is located in Macon County, near the boundary line between North Carolina and Georgia, in the mountain district. It is 21 miles east of Franklin, 7 miles north of the State line, and enjoys the distinction of being the town of highest altitude in the United States east of the Rocky Mountains. It is situated in the midst of an undulating plateau on the thread of the Blue Ridge, and is surrounded by an amphitheater of hills, spurs of the Ridge, which vary in height from 100 to 700 feet above the general level of the town site.

The instruments are located on the premises of the observer, 106 and 108 Fourth street. The thermometers are exposed in a temporary box shelter, which is near the north side of the house, but not touching it. The thermometers are 5 feet above the ground. The rain gage is placed on the lawn 80 feet from the house, and at a similar distance from the nearest trees. No shrubs are nearer than 40 feet. The top of the gage is about 2½ feet above the ground. The instruments have been in their present locations only two years, but their former locations were not greatly different.

The mean temperatures were obtained from the daily extremes.

In addition to the observations made under the direction of the Signal Service and the Weather Bureau from June, 1889, to December, 1903 (Mr. T. G. Harbison and Miss Albertine Staub, observers), the tabulated data also include the collection of State Geologist Kerr from January, 1877, to December, 1884 (Baxter White and Orphelia E. Rose, observers). The record, however, prior to 1893, is broken, the data covering a period of about twenty-one years only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	46	60	26	-10	47	28	6.9	8	5.0	14.0	2.3	5.0	NW.
January.....	34	43	63	24	-10	42	24	6.2	9	9.9	6.2	6.4	13.0	NW.
February.....	35	45	67	25	-19	43	25	8.5	10	4.9	3.0	7.8	14.0	NW.
Winter mean.....	35	45		25				21.6	27	19.8	23.2	16.5		NW.
March.....	42	52	75	32	-7	48	36	7.8	11	2.8	10.1	1.2	2.2	NW.
April.....	50	60	81	39	15	55	42	6.5	10	9.6	9.4	1.2	4.0	NW.
May.....	58	70	84	47	26	63	54	4.4	10	0.2	6.6	0.0	0.0	W.
Spring mean.....	50	61		39				18.7	31	12.6	26.1	2.4		NW.
June.....	65	76	87	55	32	69	60	6.9	13	7.6	9.3	0.0	0.0	W.
July.....	67	77	86	57	39	71	65	6.8	14	1.1	7.8	0.0	0.0	W.
August.....	66	76	85	56	40	69	62	7.6	13	1.1	30.7	0.0	0.0	W.
Summer mean.....	66	76		56				21.3	40	9.8	47.8	0.0		W.
September.....	60	71	84	51	27	64	56	5.8	8	4.9	4.5	0.0	0.0	W.
October.....	51	63	79	39	15	56	48	5.2	6	2.2	3.6	T.	T.	NW.
November.....	42	54	72	32	3	48	36	5.6	6	5.5	1.1	0.2	1.0	NW.
Fall mean.....	51	63		41				16.6	20	12.6	9.2	0.2		NW.
Annual mean.....	50	61	87	40	-19			78.2	118	54.8	106.3	19.1	14.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 85° or above.	Year.	Minimum below 10°.	Maximum 85° or above.
1894	Feb. 5, 6; Mar. 26, 27, 30; Nov. 12; Dec. 28, 29, 31.	June 13.	1900	Jan. 1, 2, 26, 28-31; Feb. 1, 2, 17-19, 24-26.	Aug. 19.
1895	Jan. 1, 12-14; Feb. 7-10, 12-14; Dec. 4-6.	June 1-3.	1901	Jan. 18; Feb. 20, 21, 23, 24; Mar. 5-7; Dec. 15-18, 20-22.	None.
1896	Jan. 4, 5; Feb. 18-22; Dec. 25.	None.	1902	Jan. 4, 5, 12, 13; Feb. 2-5, 8-10, 17, 18; Mar. 18; Dec. 20-28.	June 12, 13; July 2, 5, 6, 19; Aug. 15, 21.
1897	Jan. 27-30; Feb. 27, 28.	Do.	1903	Jan. 8, 9, 12, 13; Feb. 17-21; Nov. 18, 19, 24-29; Dec. 1-3, 7, 9, 10, 15, 16, 18, 27.	None.
1898	Jan. 1-3; Feb. 1-4, 22; Nov. 27; Dec. 14, 15.	June 10.			
1899	Jan. 7; Feb. 8-10, 12-14; Mar. 6-8; Dec. 5, 20, 29-31.	July 15.			

NORTH CAROLINA.

Western Section: MECKLENBURG COUNTY. Station: CHARLOTTE.

G. R. OBERHOLZER, Observer.

[Established by the Signal Service October 5, 1878. Latitude, 35° 13' N. Longitude, 80° 51' W. Elevation, 740 feet.]

The station, when established, occupied two rooms on the third floor of the Traders' National Bank building, situated a few doors northeast of the "Square," on East Trade street. It was moved on April 1, 1891, to the new public building, where it remains.

Charlotte is situated about 40 miles from the foothills of the Blue Ridge, on an easy slope that extends from the foot of the mountains to the lowlands that comprise the eastern third of the State. The thermometers and rain gages are exposed on a platform built upon the roof of the office building.

Tabulated data are from the following periods of observation. Humidity, fifteen years, 1889-1903. Remainder of data is from the full period of observation, twenty-five years, October 6, 1878, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 43	° F. 50	° F. 76	° F. 34	° F. - 5	° F. 55	° F. 38	In. 3.8	11	In. 1.9	In. 5.7	In. 2.2	In. 11.0	P.ct. 78	Gr. 2.06	P.ct. 64	Gr. 2.26	NE.
January.....	41	49	77	33	- 1	51	33	4.3	12	2.3	7.6	1.9	5.5	78	1.92	65	2.06	SW.
February.....	44	53	79	35	- 5	53	33	4.6	11	5.4	6.4	2.9	16.5	76	2.01	63	2.23	SW.
Winter mean.....	43	51	.....	34	.....	.....	.....	12.7	34	9.6	19.7	7.0	.....	77	2.00	64	2.18	SW.
March.....	51	60	85	41	14	57	46	4.8	12	1.6	9.2	0.6	5.2	78	2.57	62	2.67	SW.
April.....	59	70	94	49	26	65	54	3.4	10	1.9	5.4	0.1	3.5	71	3.33	55	3.38	SW.
May.....	69	80	97	59	38	75	65	3.9	11	1.7	4.8	0.0	0.0	69	4.44	54	4.31	SW.
Spring mean.....	61	70	.....	50	.....	.....	.....	12.1	33	5.2	19.4	0.7	.....	73	3.45	57	3.45	SW.
June.....	76	86	102	66	45	80	71	4.6	12	3.4	9.5	0.0	0.0	78	6.64	66	6.37	SW.
July.....	79	88	102	69	55	82	75	5.3	12	6.4	7.9	0.0	0.0	81	8.16	69	6.87	SW.
August.....	77	86	100	68	53	82	74	5.2	12	1.0	2.1	0.0	0.0	84	6.92	72	6.17	NE.
Summer mean.....	77	87	.....	68	.....	.....	.....	15.1	36	10.8	19.5	0.0	.....	81	7.24	69	6.47	SW.
September.....	72	81	99	62	38	78	69	3.3	8	4.7	3.6	0.0	0.0	82	5.75	67	5.70	NE.
October.....	61	71	92	51	30	66	57	3.4	8	1.0	1.5	T.	T.	78	3.65	62	3.94	NE.
November.....	51	60	80	41	18	58	45	3.0	9	3.7	4.7	T.	0.3	79	2.50	62	2.71	NE.
Fall mean.....	61	71	.....	51	.....	.....	.....	9.7	25	9.4	9.8	T.	.....	80	3.97	64	4.12	NE.
Annual mean.....	60	70	102	51	- 5	.....	.....	49.6	128	35.0	68.4	7.7	17.4	78	4.16	63	4.06	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 29.....	June 13, 29; Aug. 10.	1899	Feb. 13, 14.....	June 7-10, 14, 15; July 13-17; Aug. 20-22, 24, 25; Sept. 6, 7.
1895	Jan. 13; Feb. 7-9, 13, 14.	May 31; June 1-4; July 18, 19; Sept. 19, 21-24.	1900	Jan. 2; Feb. 1, 18.....	July 6, 7, 20, 21; Aug. 7-12, 15, 16, 18-22; Sept. 10.
1896	Feb. 21.....	May 11; June 26; July 29, 30; Aug. 5, 9, 10-13; Sept. 18.	1901	Dec. 21.....	July 25, 30.
1897	Jan. 28, 29.....	June 14, 30; July 1, 3, 4; Aug. 28; Sept. 14.	1902	None.....	June 12, 30; July 5-7, 10, 17-19; Aug. 21.
1898	None.....	June 9, 10, 14; July 1, 2, 17.	1903	.....do.....	May 23; July 26, 27; Aug. 25, 26, 28, 29.

NORTH CAROLINA.

Central District: RICHMOND COUNTY. Station: ROCKINGHAM.

J. M. STANBILL, Observer.

(Established by the U. S. Weather Bureau in September, 1892. Latitude, 34° 58' N Longitude, 79° 46' W Elevation, 210 feet.)

This station is situated in the extreme southern portion of the central district, near the South Carolina boundary line, in a slightly hilly or rolling country, 5 miles from the Pedee River and 126 miles from the ocean. The city is situated in the forks of two streams called Falling Creek and Hitchcock Creek, about one-fourth mile from the former, and three-fourths mile from the latter.

The instruments are located at the residence of the observer in the eastern part of town. A standard Weather Bureau shelter is used, and the thermometers are about 6 feet above the ground. The rain gage is 75 feet from the house in an open place, with the top 4 feet above the ground.

There has been no change of observers or in the location of instruments since the establishment of the station.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	43	55	77	32	7	47	38	3.6	6	3.4	5.4	1.9	8.0	N.
January.....	41	53	76	31	-2	47	36	3.1	6	1.4	2.2	1.6	7.0	NW.
February.....	43	55	80	32	-15	52	47	5.1	7	6.6	1.7	3.7	8.0	W.
Winter mean.....	42	54		32				11.8	19	11.4	9.3	7.2		W.
March.....	54	66	89	42	17	61	49	3.6	6	4.8	4.0	T.	T.	W.
April.....	61	74	97	48	28	68	54	3.6	7	2.7	4.6	T.	0.0	W.
May.....	71	84	102	58	38	70	68	4.0	7	2.4	10.6	0.0	0.0	W.
Spring mean.....	62	75		40				11.2	20	9.9	19.2	T.		W.
June.....	77	89	102	65	45	79	73	5.4	8	5.1	11.1	0.0	0.0	W.
July.....	80	91	103	69	55	82	79	6.3	9	5.0	9.4	0.0	0.0	W.
August.....	79	90	103	69	54	83	77	6.4	9	3.0	12.4	0.0	0.0	W.
Summer mean.....	79	90		68				18.1	26	13.1	32.9	0.0		W.
September.....	74	85	100	62	41	77	71	3.7	5	0.7	0.4	0.0	0.0	E.
October.....	62	74	91	50	30	66	58	3.2	4	3.9	0.8	0.0	0.0	W.
November.....	52	64	87	40	14	58	46	2.6	4	0.8	5.4	T.	0.0	W.
Fall mean.....	63	74		51				9.5	13	5.4	6.6	T.		W.
Annual mean.....	61	73	103	50	-15	83	36	50.6	78	39.8	68.0	7.2	8.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. 3, 13; Feb. 5, 6, 16, 17, 24-27; Mar. 27, 28; Nov. 11, 13, 29, 30; Dec. 28-31.	Apr. 28; May 1-3, 7-12, 14; June 4-6, 9, 11-13, 23, 29; July 14, 15, 28, 29; Aug. 10, 13; Sept. 10, 11.	1900	Jan. 1-6, 27, 29-31; Feb. 1, 2, 18-20, 25-27; Mar. 4, 17, 18; Dec. 7, 11, 15-18.	June 29, 30; July 4-8, 10, 15-22; Aug. 1, 3, 6-22, 26-29; Sept. 11-14.
1895	Jan. 1, 2, 4, 13-15; Feb. 3, 5-15, 19, 23-25; Mar. 17; Nov. 21; Dec. 5-7, 11, 14, 15.	May 30, 31; June 1-5, 20, 21, 25; July 18, 19, 24; Aug. 5, 10-12, 18, 28, 30; Sept. 13, 18-25.	1901	Jan. 5, 14, 18-20, 26, 29; Feb. 1, 2, 6, 7, 15, 20, 21, 23-28; Mar. 6, 7; Nov. 14, 15, 17-22, 27-29; Dec. 7, 8, 15-22.	June 24; July 25, 27, 30.
1896	Jan. 2, 4-7, 12, 15; Feb. 18, 19, 21-23; Mar. 21; Dec. 2-7, 25-27.	Apr. 17, 18; May 10-12, 17-19; June 27, 29, 30; July 14-16, 25-31; Aug. 3-12, 16, 17; Sept. 14, 18, 19.	1902	Jan. 4-7, 12-14, 17, 18, 23; Feb. 3-14, 18-20; Mar. 19; Dec. 10, 26-28.	June 12, 13, 28, 29; July 3-7, 9-11, 17-19, 30; Aug. 3.
1897	Jan. 6, 7, 9, 12, 19, 28-31; Feb. 1, 4, 28; Dec. 1, 25, 29.	June 1, 12-14, 16, 17, 24, 26, 29, 30; July 1-5, 31; Aug. 1, 4-6, 28-31; Sept. 7, 9-12, 14, 15, 17.	1903	Jan. 10, 13-16, 19, 23, 31; Feb. 6, 17-20, 23; Nov. 8, 19, 20, 27-30; Dec. 1, 4, 7, 8, 11, 12, 16, 18-20, 23, 26-28, 30, 31.	May 20-23; July 3, 4, 17, 18, 26, 29-31; Aug. 6, 25-29.
1898	Jan. 1-4, 28; Feb. 1-5, 7, 8, 17, 23; Nov. 27, 28; Dec. 6, 13-16 (incomplete.)	May 20, 21, 28-30; June 2, 3, 9-14, 16, 25-30; July 1-4, 16-22, 28; Aug. 23, 24.			
1899	Jan. 2-4, 7-9, 11, 12, 20, 21, 28, 29; Feb. 1, 9-15, 17; Mar. 7, 8; Dec. 5, 6, 20-23, 26, 27, 29-31.	May 3, 16-18; June 6-10, 13-15, 22, 28; July 12-18, 21, 29, 30; Aug. 1-5, 12, 19-21, 24; Sept. 3, 4, 6, 7.			

NORTH CAROLINA.

Central District: CUMBERLAND COUNTY. Station: FAYETTEVILLE.

FRANK GLOVER, Observer.

[Established by the Smithsonian Institution in March, 1871. Latitude, 35° 8' N. Longitude, 78° 53' W. Elevation, 170 feet.]

Fayetteville is situated in the east-central portion of Cumberland County, on the Cape Fear River, which here passes the "fall line" in a deep gorge. The surrounding country is level and generally open in character, though there is some forest in the vicinity.

The station is located in the western part of the city, and is about 25 feet higher than the center of the town. The thermometers are exposed in a regular Weather Bureau shelter which is placed in a large open lot about 65 feet from the nearest house; the ground all around the shelter is covered with sod. The bottom of the shelter is 4 feet above the ground. The rain gage is 6 feet from the shelter in an unobstructed location; its top is 4 feet above the ground.

The mean temperatures were obtained from the daily extremes.

The Smithsonian collection of data extends from 1871-1873, with G. W. Lawrence and J. M. Worth as observers. In 1878 the station was reestablished by Professor Kerr, State geologist, with J. M. Sherwood and Jas. R. Horne observers. It became a river station of the Weather Bureau in 1892.

The record prior to 1895 is much broken. Tabulated data, included within the period of observation, March 1, 1871, to December 31, 1903, are for about sixteen years only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	43	54	76	32	9	50	37	4.5	8	3.8	8.2	1.2	8.5	SW.
January.....	43	53	78	32	10	50	39	4.6	9	2.2	10.2	1.8	7.5	SW.
February.....	44	53	79	32	-5	52	34	4.6	9	6.2	10.8	4.7	8.5	SW.
Winter mean.....	43	53		32				13.7	26	12.2	29.2	7.7		SW.
March.....	54	66	89	43	15	61	45	5.2	10	2.4	8.8	T.	T.	SW.
April.....	60	71	91	48	29	65	55	4.1	8	2.8	12.7	T.	T.	SW.
May.....	70	82	98	59	42	75	66	4.4	9	1.8	4.1	0.0	0.0	SW.
Spring mean.....	61	73		50				13.7	27	7.0	25.6	T.		SW.
June.....	76	87	101	66	51	83	72	4.1	10	2.4	2.5	0.0	0.0	SW.
July.....	79	89	101	69	54	82	77	7.2	12	2.5	17.2	0.0	0.0	SW.
August.....	78	89	102	68	51	84	73	6.1	12	2.8	13.2	0.0	0.0	SW.
Summer mean.....	78	88		68				17.4	34	7.7	32.9	0.0		SW.
September.....	72	84	99	62	39	77	67	4.5	7	5.2	7.7	0.0	0.0	NE.
October.....	62	74	90	51	30	67	58	3.7	6	2.0	3.5	0.0	0.0	N.
November.....	51	65	85	41	16	58	45	3.0	6	3.3	3.1	T.	T.	N.
Fall mean.....	62	74		51				11.2	19	10.5	14.3	T.		N.
Annual mean.....	61	72	102	50	-5			56.0	106	37.4	102.0	7.7	8.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FEBRUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1895	Feb. 6, 8-15; Dec. 6, 7, 11, 14, 15.	May 31; June 1-4.	1901	Jan. 14, 19, 20, 26; Feb. 1, 2, 6, 7, 20-25, 28; Mar. 6-8; Nov. 16, 20, 22, 27, 29; Dec. 7, 8, 16-23.	May 2, 3; July 2, 4, 5, 25.
1896	Jan. 2, 4-7; Feb. 21, 22; Dec. 1-6, 24-28.	May 11, 12; July 28-30; Aug. 5, 7-12, 23; Sept. 18, 19.	1902	Jan. 2, 4-7, 12-14, 18; Feb. 3, 5-7, 9-14, 18; Mar. 7, 19; Dec. 9, 10, 24, 26-29.	June 12, 13, 30; July 1, 3-8, 17-20; Aug. 4, 11, 21; Sept. 3.
1897	Jan. 7-9, 12, 13, 19, 20, 26, 28-31; Feb. 28; Nov. 19, 24; Dec. 1, 25, 29.	June 17, 24, 30; July 1-4; Aug. 5; Sept. 14, 17.	1903	Jan. 2, 13-15, 27; Feb. 18-20, 23; Nov. 19, 20, 27, 28, 30; Dec. 1-4, 7, 8, 11, 12, 15-19, 26, 27, 30.	May 23; July 27, 30; Aug. 25-29.
1898	Jan. 1-4; Feb. 1-4, 7, 17, 23, 26; Nov. 25, 27, 28; Dec. 6, 8, 11, 12, 14-16, 27.	May 30; June 9-12, 14, 26, 28; July 17, 20; Aug. 24, 25.			
1899	Jan. 2, 3, 8, 9, 12, 20, 21, 28-30; Feb. 1, 9, 10-15; Mar. 7, 8; Dec. 6, 22, 23, 26, 27, 29-31.	June 7-9, 14, 15; July 16, 30; Aug. 3-5, 20, 21; Sept. 4, 6.			
1900	Jan. 1-5, 27, 30; Feb. 1, 2, 18-20, 25-28; Mar. 22; Dec. 7, 12, 15-18.	July 5-8, 16, 18-22; Aug. 7-21, 26-29; Sept. 7, 8-13, 27.			

NORTH CAROLINA.

Eastern District: WAYNE COUNTY. Station: GOLDSBORO.

NETTIE B. TAYLOR, Observer.

(Established by the Signal Service as a cotton-region station in April, 1883. Latitude 35° 23' N. Longitude, 78° W. Elevation, 102 feet.)

Goldsboro is situated on a perfectly level, very sandy plain, about 2½ miles north of the Neuse River, which, though navigable up to this point, is but little used by steamboats. The station is located in the southern part of Goldsboro. The instrument shelter is of standard Weather Bureau pattern, opening toward the north, and is 26 feet south of the small frame dwelling of the observer. The thermometers are 5½ feet above the ground. The rain gage is 18 feet from the shelter, the top is 7 feet above the ground. The instruments were moved quite recently to their present positions. The exposure is entirely without obstructions of any kind.

The mean temperatures were obtained from the daily extremes.

Tabulated data are included within the following periods: Smithsonian collection from January, 1856, to December, 1873, D. Morrell and E. W. Adams, observers; under the control of State Geologist Kerr from January, 1874, to June, 1878, J. R. Machen, observer. The data for the whole period of observation, extending from January 1, 1856, to December 31, 1903, are for about twenty-seven years only, the record prior to 1890 being much broken. During the period 1883 to 1889 observations were made only from April to October or May to November of each year.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	44	53	83	32	9	51	36	3.4	7	1.6	5.9	1.1	1.0
January.....	42	52	76	31	12	51	33	2.9	10	2.6	2.8	0.9	3.6
February.....	46	51	76	30	11	54	37	3.7	9	5.8	2.1	3.4	10.0
Winter mean.....	44	52		31				10.0	26	10.0	10.8	5.4	
March.....	52	64	79	41	17	60	46	4.6	11	5.9	8.8	T.	T.
April.....	60	72	93	49	30	66	51	4.3	10	3.6	8.0	0.0	0.0
May.....	70	81	104	59	36	75	63	4.6	11	1.0	3.8	0.0	0.0
Spring mean.....	61	72		50				13.5	32	10.5	20.6	T.	
June.....	77	87	102	67	46	83	72	4.9	10	6.1	5.9	0.0	0.0
July.....	80	89	101	70	50	84	74	6.0	12	3.6	3.7	0.0	0.0
August.....	78	88	105	70	53	82	75	7.0	13	4.4	6.0	0.0	0.0
Summer mean.....	78	88		69				17.9	35	14.1	15.6	0.0	
September.....	73	82	98	64	41	76	69	4.6	8	2.0	16.7	0.0	0.0
October.....	62	72	89	52	31	69	58	3.3	7	4.3	3.6	0.0	0.0
November.....	52	63	82	40	17	57	44	2.4	6	0.5	3.8	T.	0.1
Fall mean.....	62	72		52				10.3	21	6.8	24.1	T.	
Annual mean.....	61	71	105	50	9			51.7	114	41.4	71.1	5.4	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD MAY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Nov. 30.....	May 17; June 11, 12, 23, 24, 29; July 13.	1901	Jan. 19-21; Feb. 1, 2, 21-26; Mar. 6-8; Nov. 29, 30; Dec. 7, 8, 16-23.	July 2-4, 6, 25, 29, 30; Aug. 2.
1895	Missing.....	May 31; June 1, 5-5; July 18-23; Aug. 10; Sept. 22, 23.			
1896	.....do.....	May 11-14, 18-20; July 16, 28-31; Aug. 3, 6-15, 24, 25; Sept. 4, 19.	1902	Jan. 5-8, 12-15; Feb. 4-6, 7, 9-12, 14, 15, 19, 20; Mar. 19, 20; Dec. 9, 10, 25-29.	July 4-6, 10, 18-20; Aug. 4, 10.
1897	.....do.....	June 14, 16-18, 25, 27; July 1-4; Aug. 6; Sept. 15.			
1898	.....do.....	May 3, 21, 22, 30, 31; June 3, 9-16, 26-30; July 2-5, 17-23, 27, 28, 30, 31; Aug. 8, 9.	1903	Jan. 9, 10, 13, 14, 19, 20; Feb. 18-21; Nov. 8, 19, 23, 28, 30; Dec. 1, 4, 7, 11, 12, 16-20, 23, 27, 28.	July 3, 24, 25; Aug. 25, 26, 28, 29.
1899	Dec. 22, 23, 26-30.....	May 18, 19; June 6-11; July 17, 31; Aug. 5, 6, 22.			
1900	Jan. 1-6, 27, 30, 31; Feb. 1-3, 18-21, 25-28; Mar. 1; Dec. 15-18.	July 6-9, 17, 19-23; Aug. 8-14, 16, 17, 19, 21, 27, 29.			

NORTH CAROLINA.

Eastern District: CRAVEN COUNTY. Station: NEWBERN.

JAMES B. HILL, Observer.

[Established by the Signal Service as a cotton-region station in April, 1884. Latitude, 35° 7' N. Longitude, 77° 5' W. Elevation, 12 feet.]

The county is located about the center of the eastern coast region of the State. The city is situated at the junction of the Neuse and Trent rivers, the Neuse forming the eastern boundary and the Trent entering that river south of the city. Both streams are of considerable width, the Neuse here beginning to broaden rapidly to merge with Pamlico Sound. The country is quite level, with a gentle slope toward the river.

The instruments are located in a large yard covered with green sod. The shelter is an old-style cotton-region shelter which was formerly fastened to the west side of a low frame house, but is now placed in the center of the yard. The thermometers are 4 feet above the sod. The rain gage is 6 feet south of the shelter; the top of the gage is 3 feet 3 inches above the ground.

The mean temperatures were obtained from the daily extremes.

In addition to the observations made by William Dunn, W. B. Boyd, H. V. Webb, and the present observer, covering the period April, 1884, to December, 1903, tabulated data also include a series of observations made by Mr. R. Berry and Dr. C. Duffy, under the direction of Professor Kerr, State geologist, from 1872 to 1882. The entire record is for about twenty-seven years only, being quite broken prior to 1892.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	46	58	78	36	12	57	36	3.4	8	4.8	5.0	0.6	3.0
January.....	46	56	80	35	6	55	32	4.0	9	1.7	2.2	0.8	5.0
February.....	47	58	80	36	2	58	37	4.0	8	4.1	2.3	2.4	9.0
Winter mean.....	46	57		36				11.4	25	10.6	9.5	3.8	
March.....	53	65	86	43	17	60	44	3.9	8	3.8	4.9	T.	
April.....	60	71	92	50	28	65	50	3.7	7	1.9	4.7	0.0	
May.....	69	80	99	59	36	75	61	4.5	10	2.7	3.6	0.0	
Spring mean.....	61	72		51				12.1	25	8.4	13.2	T.	
June.....	76	86	100	67	49	78	72	4.8	11	3.0	3.0	0.0	
July.....	79	88	100	70	54	84	71	7.1	13	2.6	12.9	0.0	
August.....	78	88	100	70	53	83	73	7.9	14	3.7	12.4	0.0	
Summer mean.....	78	87		69				19.8	38	9.3	28.3	0.0	
September.....	73	83	100	64	42	78	70	4.8	9	0.7	11.0	0.0	
October.....	63	74	90	52	28	68	58	3.8	8	4.9	3.4	0.0	
Novemehr.....	53	65	86	44	16	63	48	3.1	7	1.3	3.1	T.	
Fall mean.....	63	74		53				11.7	24	6.9	17.5	T.	
Annual mean.....	62	73	100	52	2			55.0	112	35.2	68.5	3.8	9.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Feb. 17; Mar. 28; Dec. 29, 30.	None.	1900	Jan. 1-6, 30, 31; Feb. 1, 2, 18-20, 25-28; Mar. 13; Dec. 15-18.	July 5-8, 20-23; Aug. 8-14, 16, 19-21, 25, 27, 29.
1895	Jan. 1-3, 13-15; Feb. 6, 8-15, 24; Dec. 6, 11, 14, 15.	May 31; June 1-5; July 7, 18, 19; Aug. 29; Sept. 10, 13, 18-24.	1901	Jan. 5, 14, 19, 20, 29; Feb. 1, 2, 6, 7, 13, 15, 21-25; Mar. 6, 7; Nov. 29; Dec. 16-19, 21, 22.	May 3; July 24-26, 29, 30.
1896	Jan. 2, 5-7; Feb. 17-19, 21, 22; Dec. 25, 26.	May 12, 13, 19; June missing; July 29, 31; Aug. 10, 11.	1902	Jan. 4-7, 12-14, 18; Feb. missing; Mar. 19; Dec. 9, 10, 27-29.	July 4-6, 10, 18-20; Aug. 4.
1897	Jan. 28, 29.....	July 2.	1903	Jan. 9, 10, 13, 14; Feb. 6, 18-20, 23; Nov. 8, 19, 27, 28, 30; Dec. 1, 7, 16, 18, 27.	Aug. 25, 26, 28.
1898	Jan. 2; Feb. 2, 3; Nov. 27; Dec. 6, *10, 12, 14-16.	May 3, 21, 22, 30, 31; June 10-16, 26-30; July 2-6, 16-22, 28, 30, 31; Aug. 3, 4, 6, 9, 26; Sept. 3, 4.			
1899	Jan. 3, 4, 29; Feb. 9-15; Mar. 8; Dec. 27, 29-31.	June 8, 9, 16; July 31; Aug. 4, 5, 7, 8, 15; Sept. 5, 7, 9.			

NORTH CAROLINA.

Coast District: DARE COUNTY. Station: HATTERAS

S. L. DOSHER, Observer.

[Established by the Signal Service September 1, 1874. Latitude, 35° 15' N. Longitude, 75° 40' W. Elevation, 6 feet.]

The station was first opened at Cape Hatteras light-house, about 10 miles northeast of its present location, where it was continued until December 1, 1880, when it was moved to Durants life-saving station, near the village of Hatteras and about 9 miles south of its first location. On October 1, 1883, it was moved from the life-saving station to U. O'Neal's house in the southwest portion of Hatteras village and about a mile distant from the life-saving station, and on April 1, 1887, it was again moved to the Styron building, about 200 yards distant from the O'Neal house. On January 1, 1902, the station was moved to the new Weather Bureau building, about one-fourth of a mile from the Styron building, where it is still located. The topographical features of the different locations are almost identical.

The thermometers are exposed in a standard shelter over sod. They are 12 feet above the ground and the surrounding conditions are such as to give the air free access.

The rain gage is situated on the roof of the office building, 34 feet above the ground, the roof being flat and free from obstructions.

Tabulated data are from the following periods of observation: Mean maximum and mean minimum temperatures, twenty years; snowfall, twenty years; humidity, sixteen years; remainder of data is from the full period of observation, twenty-nine years, September 1, 1874, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	48	54	73	43	8	56	41	5.2	11	2.9	13.4	T.	5.8	84	3.08	84	3.31	N.
January.....	45	51	73	40	14	56	36	5.1	13	1.4	5.9	T.	1.2	85	2.90	85	3.01	N.
February.....	46	52	73	40	11	56	36	4.5	11	3.6	5.8	T.	3.5	83	2.83	85	3.01	N.
Winter mean.....	46	52	.....	41	.....	.....	.....	14.8	35	7.9	25.1	T.	.....	84	2.94	85	3.11	N.
March.....	51	57	75	45	25	58	47	5.4	12	2.8	10.4	T.	0.5	83	3.08	84	3.35	NE.
April.....	57	63	80	52	31	61	52	4.2	10	1.9	11.1	0.0	0.0	80	4.15	82	4.26	NE.
May.....	67	73	88	62	43	71	61	4.2	10	2.2	3.1	0.0	0.0	82	5.94	85	5.96	NE.
Spring mean.....	58	64	.....	53	.....	.....	.....	13.8	32	6.9	24.6	T.	.....	82	4.49	84	4.59	NE.
June.....	74	79	91	70	56	77	71	4.8	11	2.7	8.4	0.0	0.0	83	7.76	86	7.55	SW.
July.....	78	82	92	73	61	80	75	6.3	11	2.6	9.8	0.0	0.0	83	8.53	85	8.47	SW.
August.....	78	82	92	74	60	81	76	6.1	13	4.0	4.2	0.0	0.0	83	8.53	85	8.47	SW.
Summer mean.....	77	81	.....	72	.....	.....	.....	17.2	35	9.3	22.4	0.0	.....	83	8.27	85	8.16	SW.
September.....	74	79	90	70	50	79	70	5.6	9	5.1	15.4	0.0	0.0	81	7.34	83	7.29	NE.
October.....	65	70	90	60	42	71	61	6.4	9	4.8	6.2	0.0	0.0	81	5.32	82	5.38	NE.
November.....	56	61	79	51	27	60	50	4.7	10	6.1	8.4	T.	1.0	83	4.02	83	4.02	NE.
Fall mean.....	65	70	.....	60	.....	.....	.....	16.7	28	16.0	30.0	T.	.....	82	5.56	83	5.56	NE.
Annual mean.....	62	67	92	57	8	.....	.....	62.5	130	40.1	102.1	T.	5.8	83	5.32	84	5.36	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 90° or above.	Year.	Minimum below 22°.	Maximum 90° or above.
1894	Dec. 29.....	None.	1900	Jan. 2; Feb. 1.....	July 6; Aug. 9.
1895	Feb. 8, 9, 11, 13, 14.....	June 3.	1901	Feb. 24; Dec. 21.....	None.
1896	Jan. 5, 6; Feb. 21, 22.....	July 30; Aug. 11.	1902	None.....	July 4-6.
1897	Jan. 29.....	None.	1903	Dec. 27.....	Aug. 25, 29.
1898	Feb. 2.....	Do.			
1899	Feb. 10, 11, 13, 14; Dec. 30, 31.	Do.			

NORTH CAROLINA.

Eastern District: DUPLIN COUNTY. Station: SLOAN.

D. M. SHOLAR, Observer.

[Established by the United States Weather Bureau in March, 1893. Latitude, 34° 46' N. Longitude, 77° 48' W. Elevation, 50 feet.]

Sloan is situated near the southern edge of Duplin County about 40 miles directly north of Wilmington. The entire county is very level. The station is located at the farm house of the observer, 2½ miles southeast of Sloan.

The thermometers are exposed in a standard shelter, which is placed southeast of the dwelling about 25 feet away; the door opens toward the north; the thermometers are elevated 5 feet 4 inches above the ground. The rain gage is 72 feet south of the shelter and 33 feet from a large apple tree; the top of the gage is 2½ feet above ground. The exposure of all instruments is excellent and has remained unchanged since the establishment of the station.

The mean temperatures were obtained from the daily extremes

MONTHLY, SEASONAL, AND ANNUAL MEANS MARCH 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.				Snow.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	46	58	76	34	11	49	39	3.5	7	3.1	5.1	0.1	1.0	N.	
January.....	45	56	77	34	13	50	42	3.9	8	1.3	3.1	0.4	3.0	N.	
February.....	45	56	78	33	1	51	36	4.8	8	6.2	4.4	4.3	19.8	W, SW	
Winter mean.....	45	57		34				12.2	23	10.6	12.6	4.8		N.	
March.....	54	66	88	43	14	60	51	4.2	9	4.2	5.3	T.	T.	S.	
April.....	60	72	92	47	28	65	54	3.7	7	2.4	2.6	T.	T.	S.	
May.....	70	82	97	58	39	72	67	4.0	9	3.8	9.4	0	0	S.	
Spring mean.....	61	73		49				11.9	25	10.4	17.3	T.		S.	
June.....	76	87	101	50	50	78	75	5.1	10	5.7	6.0	0	0	S.	
July.....	79	89	100	70	55	80	78	6.9	12	2.1	12.8	0	0	S.	
August.....	78	88	102	68	51	81	76	7.7	13	3.2	7.4	0	0	S.	
Summer mean.....	78	88		68				19.7	35	11.0	26.2	0		S.	
September.....	74	84	97	63	38	76	71	3.0	6	2.0	7.2	0	0	N.	
October.....	63	74	90	52	28	67	58	4.3	7	5.4	1.6	0	0	N.	
November.....	54	65	86	42	14	59	47	3.3	6	2.0	2.0	T.	T.	N.	
Fall mean.....	64	74		52				10.6	19	9.4	10.8	T.		N.	
Annual mean.....	62	73	102	51	1			54.4	102	41.4	66.9	4.8	19.8	S.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Feb. 6, 7, 25; Mar. 28; Dec. 28-30.	June 11-13; Aug. 10; Sept. 10.	1900	Jan. 2-6, 27, 30; Feb. 1, 2, 18, 19, 25-28; Mar. 4, 22; Dec. 2, 7, 12, 15-18, 22.	July 5-8, 19-22; Aug. 7-15, 18-20, 26-29; Sept. 10.
1895	Jan. 1, 2, 13-15; Feb. 5, 6, 8, 9-15, 20, 24, 25; Nov. 21; Dec. 4, 6, 7, 11, 14, 15.	May 31; June 1-5, 21, 22; July 18, 19; Aug. 11, 30; Sept. 21-23.	1901	Jan. 5, 13, 18, 19, 28; Feb. 1, 2, 6, 7, 15, 21-25, 28; Mar. 6-8; Nov. 16, 18-20, 22, 27-29; Dec. 7, 8, 17-19, 21-23.	May 3; Sept. 14.
1896	Jan. 2, 4-7, 12, 15, 29; Feb. 17-19, 21, 22, 26; Dec. 3-5, 22, 24-27.	May 11, 12; July 25, 28-30; Aug. 8-12; Sept. 18.	1902	Jan. 2, 3, 4, 6, 7, 12-15, 18, 20; Feb. 4-7, 9-14, 19; Mar. 7, 19; Dec. 9, 10, 17, 26-28.	June 12, 19, 21, 30; July 1, 4-6, 10, 17-21; Aug. 4, 21.
1897	Jan. 7, 9, 19, 27-31; Feb. 28; Nov. 19; Dec. 1, 25, 28.	June 24, 26, 30; July 1-3; Aug. 15; Sept. 14, 17.	1903	Jan. 9, 10, 13-16; Feb. 18-20, 23; Nov. 8, 19, 20, 27, 28, 30; Dec. 1, 4, 7, 8, 11, 12, 14, 16-19, 23, 24, 27-30.	July 27; Aug. 25-30
1898	Jan. 2-4; Feb. 1-4, 23; Nov. 25, 27, 28; Dec. 8, 12, 14, 15.	May 30; June 10-12, 14, 26-30; July 19, 20; Aug. 1.			
1899	Jan. 2, 3, 8, 20, 21, 29, 30; Feb. 1, 9-15; Mar. 8; Dec. 21, 22, 24, 26-30.	June 7, 8; July 30; Aug. 3-6; Sept. 6.			

NORTH CAROLINA.

Eastern District: ROBESON COUNTY. Station: LUMBERTON.

B. M. DAVIS, Observer.

[Established by the Signal Service as a cotton-region station in July, 1882. Latitude, 34° 38' N. Longitude, 78° 50' W. Elevation, 102 feet.]

Lumberton is situated in the central-east portion of Robeson County on the Lumber River, which here is perhaps 100 feet or so wide. The land is extremely level.

The thermometers were exposed in an old style cotton-region shelter, which was fastened to the north wall of the depot building, a low square brick structure. The bottom of the shelter was about 10 feet above the ground, but about 4½ feet from the top of the platform surrounding the depot. The location of the shelter has recently been changed to the yard at the residence of the observer, a somewhat higher and better position. The rain gage is located about 30 feet northwest of the dwelling house, in an open place over sod. The top of the gage is about 4 feet above the ground.

The mean temperatures were obtained from the daily extremes.

Tabulated data are included within the period of observation July 1, 1882, to December 31, 1903. The record, however, is somewhat broken, being for about sixteen years only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	44	54	74	33	13	49	37	3.1	7	3.3	11.8	0.5	4.5
January.....	43	53	76	33	8	48	39	4.0	8	2.2	4.0	1.9	7.0
February.....	41	51	74	31	1	47	37	4.0	8	5.0	2.2	2.9	7.0
Winter mean.....	43	53		32				12.0	23	11.4	11.8	5.3	
March.....	53	64	85	42	18	60	49	3.7	8	2.5	3.6	T.	
April.....	61	72	92	50	32	66	55	4.1	9	3.0	4.2	T.	
May.....	71	82	98	59	39	76	68	4.3	10	3.4	12.5	0.0	
Spring mean.....	62	73		50				12.1	27	8.9	20.3	T.	
June.....	77	88	101	67	50	81	74	5.3	11	2.3	5.5	0.0	
July.....	80	90	102	70	55	82	77	5.8	12	2.6	6.5	0.0	
August.....	79	89	101	70	53	84	74	6.0	12	4.5	7.0	0.0	
Summer mean.....	79	89		69				17.1	35	9.4	19.0	0.0	
September.....	72	83	97	63	35	76	62	3.9	8	3.3	9.4	0.0	
October.....	62	73	92	51	29	66	58	3.5	7	4.4	1.2	0.0	
November.....	52	63	82	48	15	57	45	2.4	6	4.3	1.0	0.0	
Fall mean.....	62	73		54				9.8	21	12.0	11.6	0.0	
Annual mean.....	61	72	102	51	1			51.0	106	41.7	62.7	5.3	7.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Jan. to Mar. missing..	June 5, 12-14, 29; July 14, 15; Aug. 9, 10.	1901	Jan. 14, 19, 20; Feb. 1, 2, 21, 24-26, 28; Mar. 6-8; Nov. 18, 19, 22, 23, 27-30; Dec. 7, 8, 16-23.	July 2-4, 6, 20-30.
1895	Jan. 1, 2, 13-15; Feb. 8-15, 24; Nov. 21; Dec. 5-7, 13-15.	May 31; June 1-6, 15, 20-22; July 18, 19, 24; Sept. 24.	1902	Jan. 4-8, 12-15, 18, 19; Feb. 5-7, 9-11, 13-15, 18; Mar. 19; Dec. 10, 26-28.	June 28, 29; July 1, 3-7, 10, 17-20; Aug. 3, 4, 6, 21.
1896	Jan. 1, 2, 4-6, 15; Feb. 17-19, 21, 22 (Nov. and Dec. missing).	May 12, 13, 18-20; July 15-17, 25, 26, 29, 30, 31; Aug. 1, 4, 8-12, 14, 24, 25.	1903	Jan. 9, 10, 13, 14; Feb. 18, 20, 21; Nov. 8, 19, 20, 27-30; Dec. 1, 4, 5, 7-9, 11-13, 16-20, 27-31.	July 2-4, 19, 27, 30; Aug. 25-29.
1897	(Jan., Feb., and Mar. missing); Dec. 25, 29.	June 17, 18, 25, 27; July 1-5; Aug. 2, 6; Sept. 7, 18.			
1898	Jan. 2-4; Feb. 2-4, 17, 23; Nov. 28; Dec. 14-16.	May 31; June 10-13, 15, 16, 20-30; July 2, 4, 5, 17-22; Aug. 9, 11.			
1899	Jan. 2, 3, 8, 9, 21, 22, 29, 30; Feb. 9-16; Dec. 27-31.	May 19; June 8-11, 15, 16; July 17, 18, 31; Aug. 4, 5-7; Sept. 7.			
1900	Jan. 1-5, 30, 31; Feb. 1-3, 18-20, 25, 26; Dec. 16-19.	July 5-9, 18-23; Aug. 7-16, 18-20, 24-29; Sept. 14.			

NORTH CAROLINA.

Southern Coast: NEW HANOVER COUNTY. Station: WILMINGTON.

G. W. FELGER, Observer.

[Established by the Signal Service December 18, 1870, and observations began January 1, 1871. Latitude, 34° 14' N. Longitude, 77° 57' W. Elevation, 37 feet.]

Wilmington is situated on the left bank of the Cape Fear River, 30 miles from its mouth and 11 miles west from the seashore.

The station is in the business center of the city, located in the United States post-office. To the westward and about two blocks distant is the Cape Fear River, there being a steady slope of the ground from the station to its bank. The surrounding country is level, except in the vicinity of the river, where it is slightly rolling. The office has been in its present location—the United States post-office building—since July 1, 1890.

Throughout this period the exposure has been in a standard roof shelter placed on a specially constructed platform on the peak of the roof. The thermometers are 8 feet above the platform and 16 feet above the roof immediately beneath. The exposure is good in all directions. The thermometers are 82 feet above ground. The rain gage is of the tipping-bucket type, placed on the platform. The top of the gage is 76 feet above ground. The anemometer cups are 90 feet above ground.

Tabulated data are from the following periods of observation: Means of maximum temperatures, thirty years; means of minimum temperatures, twenty-nine years; humidity, fifteen years; sunshine, ten years; wind direction, fifteen years. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 p. m.	Relative, 8 a. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	49	58	78	39	10	56	39	3.1	10	3.3	7.1	0.1	2.4	81	2.57	74	2.91	186	58	NE.
January.....	47	56	80	38	9	57	39	3.6	11	1.4	2.4	0.1	1.5	81	2.39	74	2.71	186	55	NE.
February.....	49	58	80	40	5	58	37	3.4	11	3.3	1.6	1.0	12.1	80	2.54	76	2.99	168	56	SW.
Winter mean.....	48	57	.....	39	.....	.....	.....	10.1	32	8.0	11.1	1.2	.....	81	2.50	75	2.87	180	56	NE.
March.....	55	64	87	45	20	61	49	3.6	11	3.6	4.5	0.1	2.0	81	3.19	76	3.56	217	59	SW.
April.....	61	70	90	52	28	66	56	2.8	9	1.6	6.6	0.0	0.0	76	3.95	74	4.25	240	65	SW.
May.....	70	78	97	61	38	74	64	4.0	10	2.3	2.4	0.0	0.0	79	5.54	77	5.95	279	67	SW.
Spring mean.....	62	71	.....	53	.....	.....	.....	10.4	30	7.5	13.5	0.1	.....	79	4.23	76	4.59	245	64	SW.
June.....	77	84	100	69	51	81	74	5.6	12	3.2	7.5	0.0	0.0	81	7.34	80	7.48	270	64	SW.
July.....	80	87	103	72	58	84	77	6.7	13	3.0	9.4	0.0	0.0	83	8.53	83	8.53	248	57	SW.
August.....	79	86	99	71	56	81	76	7.0	14	2.4	10.5	0.0	0.0	84	8.11	84	8.37	248	61	SW.
Summer mean.....	79	86	.....	71	.....	.....	.....	19.3	39	8.6	27.4	0.0	.....	83	8.00	82	8.13	255	61	SW.
September.....	74	82	96	66	42	79	71	5.4	10	3.6	20.1	0.0	0.0	84	6.70	81	7.11	270	70	NE.
October.....	64	73	92	56	32	69	60	3.9	8	3.2	6.7	0.0	0.0	83	4.61	78	5.12	217	66	NE.
November.....	55	64	83	46	20	60	49	2.4	8	3.8	4.9	T.	1.5	83	3.38	76	3.68	210	63	NE.
Fall mean.....	64	73	.....	56	.....	.....	.....	11.7	26	10.6	31.7	T.	.....	83	4.90	78	5.30	232	66	NE.
Annual mean.....	63	72	103	55	5	.....	.....	51.5	127	34.7	83.7	1.3	12.1	81	4.90	78	5.22	228	62	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 23°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 29, 30.....	Aug. 9, 10.	1900	Jan. 2, 3; Feb. 1, 2, 18, 19.	July 5-7, 20-22; Aug. 8-10, 13, 14, 17-21, 25.
1895	Jan. 1, 13, 14; Feb. 8, 9, 14; Dec. 14.	May 31; June 1-4; Sept. 21, 22.	1901	Feb. 24; Mar. 7; Dec. 16, 17, 21, 22.	July 25.
1896	Jan. 5, 6; Feb. 17, 18, 20-22; Dec. 25.	May 12; July 30; Aug. 9.	1902	Jan. 5, 13; Dec. 27, 28.	June 30; July 1, 4-6.
1897	Jan. 23, 29.....	June 30; July 1, 2.	1903	Jan. 9; Nov. 28; Dec. 18, 27.	July 27; Aug. 25-29.
1898	Jan. 2; Feb. 2, 4.....	May 30; July 19.			
1899	Jan. 2; Feb. 10-15; Dec. 30, 31.	June 14; Aug. 3-5.			

NORTH CAROLINA.

Eastern District: BRUNSWICK COUNTY. Station: SOUTHPORT.

JESSIE M. STEVENS, Observer.

[Established as a regular station by the Signal Service in September, 1875. Latitude, 33° 55' N. Longitude, 78° 1' W. Elevation 14 feet.]

The name of this station was changed from Smithville to Southport in June, 1887. The town is situated at the mouth of the Cape Fear River and about 2 miles north of the ocean. The surrounding country is level, but the town is 10 to 40 feet above high water. This is the most southern point of the State (Cape Fear, at the end of Smiths Island), and the coast line here makes a bend directly westward for 30 miles before reaching the South Carolina boundary.

The instrument shelter is of the standard kind, and is 200 feet from the river, giving slightly lower temperatures in summer and higher in winter than if situated back in the town. The shelter is 35 feet from the dwelling, and 6 feet above the ground. The rain gage is 5 feet from the shelter, and the top is 3 feet above the ground. There are no obstructions to free circulation of air.

The mean temperatures were obtained from the daily extremes.

Tabulated data are included within the period of observation, January 1, 1822, to December 31, 1903. From 1822 to 1874 the Smithsonian collection of data was used, and from January, 1844, to July, 1845, and January, 1871, to March, 1877, the records of the United States post surgeons at Fort Johnson. The record prior to 1875 is much broken. Observations are for a period of about forty-eight years only.

MONTHLY, SEASONAL AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	49	57	75	40	10	59	40	3.5	9	2.9	7.0	0.3	1.0	NE.
January.....	47	54	76	38	6	58	30	3.8	10	3.4	3.0	0.2	2.0	SW.
February.....	49	56	75	40	1	62	40	3.5	10	2.9	2.8	2.1	7.4	SW.
Winter mean.....	48	56		39				10.8	29	9.2	12.8	2.6		SW.
March.....	54	61	79	45	20	63	46	3.9	10	2.8	5.7	T.	T.	SW.
April.....	62	68	87	52	30	67	56	2.9	8	2.4	5.2	0.0	0.0	SW.
May.....	71	78	96	63	40	77	66	3.2	8	1.4	2.6	0.0	0.0	SW.
Spring mean.....	62	69		53				10.0	26	6.6	13.5	T.		SW.
June.....	78	83	95	70	50	82	73	4.2	10	2.3	5.2	0.0	0.0	SW.
July.....	81	86	100	73	58	83	77	6.5	12	7.3	4.5	0.0	0.0	SW.
August.....	80	86	100	72	57	83	76	5.4	12	5.4	3.8	0.0	0.0	SW.
Summer mean.....	80	85		72				16.1	34	15.0	13.5	0.0		SW.
September.....	75	82	95	67	40	81	71	4.6	8	3.1	11.9	0.0	6.0	NE.
October.....	66	73	90	56	35	71	60	4.7	8	0.2	6.8	0.0	0.0	NE.
November.....	57	64	83	47	17	67	51	2.9	8	1.8	6.6	T.	T.	NE.
Fall mean.....	66	73		57				12.2	24	5.1	25.3	T.		NE.
Annual mean.....	64	71	100	55	1			49.1	113	35.9	65.1	2.6	7.4	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 25°.	Maximum 95° or above.	Year.	Minimum below 25°.	Maximum 95° or above.
1894	Dec. 28-30.....	None. September missing.	1900	Jan. 2, 3, 30; Feb. 1, 2, 18, 19, 25, 26; Dec. 17.	Aug. 8-10, 14, 19, 21.
1895	Jan. 1, 2, 13, 14; Feb. 6, 8-11, 13, 14; Dec. 6, 11, 14, 15.	None.	1901	Jan. 19; Feb. 1, 21, 24, 25; Mar. 6, 7; Nov. 29; Dec. 16-18, 21, 22.	May 3.
1896	Jan. 4-6; Feb. 17-19, 21, 22; Dec. 25, 26.	None.	1902	Jan. 4, 5, 13, 14; Feb. 5, 6, 14; Mar. 19; Dec. 27, 28.	July 1, 4-6; Aug. 19, 21, 22.
1897	Jan. 9, 28-30.....	June 14; July 1, 2, 3.	1903	Jan. 9, 13, 14; Feb. 18, 20; Nov. 19, 27, 28; Dec. 11, 16, 18, 27.	Aug. 7, 27; Sept. 5, 11.
1898	Jan. 2, 3; Feb. 1, 2, 4; Nov. 27; Dec. 14, 15.	None.			
1899	Jan. 2, 8, 20, 29; Feb. 9-15; Mar. 7, 8; Dec. 29-31.	June 15; Aug. 3-5.			

SOUTH CAROLINA.

By JACOB W. BAUER,
Section Director.

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SOUTH CAROLINA.

The topography of South Carolina varies from marshy coastal lowlands, interior alluvial plains and swamps, sandy highlands, rolling uplands to low mountains, in a series of gradations from the Atlantic Ocean to the southern spurs of the Appalachians. Her shape is that of an isosceles triangle, having its base resting on the ocean and its apex touching the mountains. This triangle is inclosed by the lines formed by the parallels of latitude 32° and $35^{\circ} 12'$ north, and longitude $78^{\circ} 30'$ and $83^{\circ} 20'$ west of Greenwich. The State is bounded on the north by North Carolina, on the east by North Carolina and the Atlantic Ocean, on the south by the Atlantic Ocean and Georgia, and on the west by Georgia. Her greatest dimension is a line from Georgetown running northwestward, through Columbia, to the northwestern part of Greenville County, and measures 241 miles. The longest straight line due north and south is 216 miles, and can be drawn from the southernmost point of Beaufort County to the North Carolina border in York County. The total area is 30,170 square miles. The area expressed in acres is 19,308,800, of which 13,958,014 acres were included in farms, and of these farm lands 5,775,741 acres were under tillage in 1899.^a

The entire State is well watered by numerous rivers and their branching tributaries. The principal rivers are navigable from the ocean for varying distances, usually to the points where the lowlands end and the hill country begins. Although the commerce carried by water is as yet comparatively unimportant, it is capable of being greatly increased. The "up-country" rivers and their largest tributaries are important and valuable for the numerous water-power sites they offer. The relation between these streams in their availability for furnishing cheap power for manufacturing purposes and the seasonal and annual precipitation is intimate, but has been modified, and the availability of the water-power sites decreased by the deforestation of the steep hillsides that are so important physical features of the western half of the State. When cleared, these hillsides yield profitable crops for a few years only, then become gullied, almost barren wastes, denuded of their soil by washing rains. These gullies act as troughs and drainage channels and facilitate the rapid off-flow of the rainfall, so that the streams are subject to quick freshets and overflows that destroy bottom-land crops, or damage them, then as quickly fall again to minimum flows. This rapid runoff of the otherwise sufficient rainfall renders power sites on the smaller streams unavailable. The remedy is reforestation of the hillsides, for which the small loss in tillable lands incurred would be amply compensated by the greater and more certain yields of the bottom lands that are the depositories of the soil from the denuded hillsides. At present the frequent occurrence, and some seasons recurrence, of freshets renders crops precarious on many of the widest and most fertile valleys.

The physical features of South Carolina have been so accurately defined and described in a publication issued by the State in 1883 ^b that all subsequent geographers have copied from it, almost in the exact language of the original description, and the regions as named in that publication will be briefly described for a correct understanding of the difference in climate of the eastern and western parts of the State.

There are seven well-defined regions, named in the order that they occur from the coast to the mountains.

I. "The coast region," a narrow border fringing the coast and extending inland about 10 miles. It includes the numerous sea islands and the extensive salt marshes. The climate of this region is illustrated by the data for Charleston and Beaufort, the latter representing the sea islands.

II. "The lower pine belt, or Savanna region," lying inland and parallel with the coast region. This region has an average width of about 50 miles, and an average elevation of about 150 feet. It includes the tidal estuaries of the rivers and considerable country lying above tidal influence. In this region there are extensive swamps and undrained lowlands. The land is generally flat, with a few elevations rising to a maximum height of 250 feet. The average slope is $2\frac{1}{2}$ feet to the mile. This makes drainage difficult. The climate of this region is shown by the data for Charleston, Blackville, and Trial.

III. "The upper pine belt" lies still farther inland, between the lower pine belt and the sand and red hills, and has an elevation ranging from 130 to 250 feet. Its surface is comparatively level, but rolling, and it has good drainage, with an average slope of about 5 feet to the mile. This region has the distinction of including the best and most productive farm lands in the State, but its soil decreases in richness as the region merges into that of the red-hill and sand-hill regions. The climate of this region differs but little from that of the lower pine belt, except that the proximity of the ocean is less apparent, and is shown by the data for Blackville and Society Hill.

IV. "The red-hill region" is irregular in outline and consists of a series of detached groups of hills on the northwestern border of the upper pine belt and among the sand hills. Its most northerly group is the "High Hills of Santee" in Sumter

^a Special Bulletin, Twelfth Census of the United States.

^b South Carolina: Resources and population; institutions and industries.

County. The red hills attain their highest elevation in Orangeburg County, with crests of from 500 to 600 feet above the sea. The soil is a reddish loam that responds to fertilization, but in its natural state is not productive, and it requires skillful tillage. The climate is represented by the data for Stateburg.

V. "The sand-hill region" stretches across the State from the Savannah River opposite Augusta, Ga., to the North Carolina line, where it intersects the Great Pee Dee River, and includes the whole, or parts, of Aiken, Edgetfield, Lexington, Richland, Kershaw, Lancaster, and Chesterfield counties. Its greatest width is about 50 miles in Lexington County. The sand hills attain an elevation of about 600 feet in Aiken County, and a maximum elevation of from 700 to 800 feet in Lexington County. The streams that originate in the western parts of the State have in this region an abrupt descent into the "low country." The climate of this region can be studied from the data for Aiken, Columbia, and Society Hill.

VI. "The Piedmont region" includes the whole of ten and parts of eight western counties, and is the largest region in the State. The elevation ranges from about 350 to 1,000 feet. The climate of the Piedmont region is shown by the data for Trenton, Columbia, Santuc, and Greenville.

VII. "The Alpine region" comprises the foothills of the Appalachian Mountains and occupies the northwestern border of the State. The country is hilly and broken, with occasionally small level table-lands capable of cultivation. Its elevation ranges from 1,000 to 3,569 feet, the latter being the summit of Rich Mountain, a peak of the Blue Ridge Mountains. This region has a distinctively mountain climate, modified by its southerly latitude and comparatively low elevation. There are no data available to define its climate except that for Greenville on its southern border.

Temperature.—The above-named physical regions have well-defined and definitely ascertained boundaries, and each has its peculiar climatic features, but it must not be inferred that the climatic and physical boundaries coincide, or that the former bears an unvarying relation to the latter throughout the year, or in any one season. There are times when the climatic boundaries disappear, especially during severe winter storms, and at times they present a reversal, more particularly in the summer time. In general, the coast and adjacent regions have the more equable temperatures, the western portions the widest range. The difference between the annual mean temperature of Beaufort (the warmest place) and Greenville (the coldest) is 8°. The spring and autumn seasons maintain this difference, while in the summer it is only 6°, and in winter it rises to 11°. If an intermediate station is included in the comparison, Columbia, for instance, midway between Beaufort and Greenville, it is found that Columbia's mean annual temperature (64°) is 2° lower than that of Beaufort and 6° higher than for Greenville. In spring the differences are 3° and 5°; in summer, 1° and 5°; in autumn, 4° and 4°, and in winter, 4° and 7°. In other words, the whole of the eastern part of the State, or the so-called "low country," has the more equable temperature. The same relative differences appear when more stations are included in the comparison.

If instead of the mean annual and mean seasonal temperatures the mean maximum temperatures are used in comparison a much smaller difference is found to exist, Beaufort's annual mean maximum being 75°, Columbia 74°, and Greenville 70°. The seasonal mean maximum temperatures are, in the same order, for the spring, 75°, 74°, 70°; for the summer, 80°, 80°, 85°; for the autumn, 77°, 74°, 73°, and for the winter, 59°, 57°, 52°. While this comparison corresponds closely with the annual and seasonal means, it also shows that the central parts have higher day temperatures in the summer than either the coast or the highlands. The difference is slight between the center and the coast (1°) and very material between the center and the west portion (5°).

The mean minimum temperatures, both annual and seasonal, show less variability, as well as wider ranges. The annual mean minimum for Beaufort is 59°; for Columbia, 53°, and for Greenville, 47°. The seasonal values in the same sequence are for the spring, 58°, 52°, 46°; for the summer, 74°, 70°, 65°; for the autumn, 61°, 54°, 48°; and for the winter 42°, 37°, 28°. This comparison is interesting, as it shows that on the coast the minimum averages at about the lowest temperature during the winter at which vegetation will grow; in the central parts it is too low for growth, although well above freezing, while in the west the average minimum is 4° below freezing. At Santuc, in the eastern part of the Piedmont region, the winter mean minimum is 31°; at Clemson College it is 30°; at Aiken, 39°; at Society Hill, 36°; Trenton, 38°; Trial, 37°. The low minimum at Trial can not be explained by reference to its location, about 50 miles from the coast, but the reason undoubtedly is on account of the level, low, swampy surrounding country. The annual mean maximum is 74° at Trial, the same as at Columbia, but the annual mean minimum is 1° lower. The greatest differences in temperatures between the extremities of the State are along the northwesterly and southeasterly line, rather than along the north and south line, although the distances are practically the same, showing the influence of the high elevations in the northwestern portion.

Killing frosts are infrequent on the coast, although few, if any, years have been exempt. The average date of last killing frost of spring at Charleston is March 3; at Beaufort, farther south but in a more exposed and open locality, it is March 8. The latest dates of killing frost in spring at those points are April 2 and 1, respectively. Inland and westward the average dates of last killing frost advance regularly, with one exception, to April 7, at Santuc, and April 5 at Greenville. At Trial the date is as late as April 4, and again illustrates the susceptibility of this locality to low temperatures. In passing, it should be noted that every section that has sandy soil exhibits the same susceptibility, especially where the sand is light yellow or nearly white. In the autumn the dates of first killing frost show the same march, except in an opposite direction, and with the same inconsistency at Trial as in the spring, being earliest at Santuc (September 30), then at Trial (October 10), followed by Greenville (October 15), and from then on regularly to the coast, on November 9 at Charleston, and November 7 at Beaufort. The average dates of first killing frost follow the same chronology as the earliest dates, ranging from October 29 at Santuc to November 30 at Charleston, with Greenville and Trial having practically the same dates, November 5 and 6, respectively. These dates show an average season without killing frost of 272 days at Charleston, 215 at Trial, 230 at Columbia, 205 at Santuc, and 215 at Greenville. In the sand-hill region clear nights, in spring and autumn, are favorable for low minimum temperatures, but generally without frost formation.

The extreme maximum temperatures vary but little in different parts of the State, although the central portions usually have the highest maxima. Temperatures of 100° or higher are of frequent occurrence in the central counties, rare along the coast, and are unknown in the western parts. The highest recorded in the last ten years was 107° at Darlington and Florence in 1902. Extreme minimum temperatures show a wider range. The lowest minimum recorded in the last ten years was -11° at Santuc and Shaws Forks (Aiken County) in February, 1899. The average number of days with temperatures above 90° ranges from 79 at Blackville to 21 at Charleston; below 32° the averages are 80 days at Greenville, 9 at Charleston, 16 at Beaufort, 20 at Aiken, 34 at Trial, 28 at Stateburg, and 38 at Columbia. This shows an irregularity in distribution that may be attributed to local topography, soil, and elevation.

Relative humidity.—The average relative humidity at different places is largely a matter of approximation, as observations have been taken for any considerable period at two places only, namely, Charleston and Aiken, and as the hours of observation were not the same the results are not strictly comparable. These observations are not taken at voluntary observer's stations, and at Columbia cover not quite three years, a period too short for reliable means. These three years compare favorably with the longer period at Charleston. To institute a reliable comparison between Charleston and Columbia, the data for 1901-3 were reduced to means, and are given in the following table for January and July. The relative humidity data for Aiken at 7 a. m. and 9 p. m. is added to the table, and includes a period of twelve years.

Place.	January.				July.			
	8 a. m.		8 p. m.		8 a. m.		8 p. m.	
	Temper- ature.	Relative humid- ity.	Temper- ature.	Relative humid- ity.	Temper- ature.	Relative humid- ity.	Temper- ature.	Relative humid- ity.
	° F.	Per cent.	° F.	Per cent.	° F.	Per cent.	° F.	Per cent.
Charleston.....	40	79	49	75	79	79	81	78
Columbia.....	38	79	46	66	76	76	82	66
Aiken.....		68		67		70		67

From the table it would appear that the interior is much drier during the evening than the coast, but that the difference in the relative humidity is slight during the morning hours. Assuming that the relative humidity is from 18 to 20 per cent lower during the hottest part of the day, and this assumption is warranted,^a it would also appear that the interior has a much wider diurnal range than the coast region. Exceedingly low percentages of relative humidity, ranging from 15 to 25 per cent, occur at all seasons, but when associated with temperatures above 90° they are harmful to vegetation and probably also to animal organism. In other than the hottest seasons low relative humidity has no noticeable effect on either. Muggy days are not uncommon along the coast, and, more than any other climatic feature, render the summer season almost unendurable to the unacclimated. In the interior muggy days are so rare and their period of duration so short that they do not detract from the healthfulness of the climate. Muggy weather is conducive to rapid growth of vegetation, and in that manner compensates for the discomforts it causes.

Precipitation.—The precipitation of South Carolina is well distributed, both geographically and by seasons. The season of heaviest rainfall is the summer time, when vegetation is most in need of it. The mean annual amount is 49 inches, and the variations from this amount are comparatively small, Charleston with the largest amount having 53.4 and Stateburg 44.4 the smallest. The next smallest amount is 46.7 at Columbia. Omitting Charleston, Stateburg, and Columbia, whose lengths of record are thirty-three, twenty, and sixteen years, and using only such stations whose years of record coincide and include the period from 1893 to 1903, it is found that the greatest average annual rainfall was 53 at Greenville, closely followed by Trenton with 52.1 inches; the least was 48 at Santuc, with Beaufort only slightly greater with 48.3 inches. This comparison would indicate that the different parts of the State have practically like amounts of precipitation.

The average spring rainfall is 10.8 inches, summer 17, autumn 10.1, and winter 11.6. The range in the spring is between 9.1 at Beaufort and 12.6 at Greenville, the summer range between 13.6 at Santuc and 20.1 at Charleston; the autumn range between 8.4 at Stateburg and 12.5 at Charleston, and the winter range between 8.2 at Beaufort and 14.2 at Greenville. This would indicate that the heaviest rainfall during the spring and winter is over the western parts of the State and the heaviest summer and autumn rainfall in the eastern parts, particularly the coast regions. The long record of Charleston and the shorter record at Beaufort both agree in the above conclusion, although the longer record shows the larger amount. The small annual rainfall at Stateburg is probably due to the peculiar location of that station on a spur of the "High Hills of Santee." A thirty-six year average at Camden, about 20 miles north of Stateburg, is even less, being only 43.3 inches.

The average number of days with 0.01 or more precipitation (excluding precipitation from dew) ranges from 87 at Aiken to 119 at Charleston. The probability of rainy days therefore ranges from 24 to 33 per cent. Stateburg and Blackville show the lowest rain intensity with 0.40 at both places, while Aiken has an apparent rain intensity of 0.56; this is considered too high in comparison with surrounding stations. Records such as these can not be made absolutely accurate and have only an approximate value. Their accuracy depends too much on the personality of the observer, especially at voluntary observer's station. The monthly, seasonal, and annual values are more nearly correct than that of any single rain, as the gage may or may not be visited and measured after each rain, but the contents will be added to the next rain and be included in the amount for it, with only the loss by evaporation to vitiate the record, while the rain intensity will be practically twice the amount it should be.

^a Handbook of Climatology, Hann. (1903).

Heavy rainfalls, in excess of 12 inches for the month, are not infrequent in South Carolina during June, July, and August, and are rare during the rest of the year. They usually occur in the southern parts. The heaviest monthly rainfall at any stations occurred in August, 1898, when the totals at Port Royal (near Beaufort) and at Gillisonville (about 30 miles inland) were 24.7 and 24.4 inches, respectively. These torrential rains occur only during the passage of West India hurricanes. In the western parts there are comparatively few days having rains in excess of 3 inches for any twenty-four consecutive hours.

Hail storms are seldom of wide extent or destructive, although occasionally they occur in May and June, seldom in July, and rarely in August, and are practically unknown during the rest of the year. Hail storms are most frequent in the north central and northeastern parts, and rarely occur in the southernmost parts.

The difference in latitude and in elevation from the coast to the mountains have an appreciable influence on the occurrence of snowstorms. The line marking the absolute southern limit of snow does not cross or touch this State, although the southernmost part is practically exempt. Although during the occurrence of severe cold waves snow falls in the vicinity of Charleston and the adjoining low country, it is exceedingly rare that it accumulates on the ground, but almost invariably melts as it falls. On the contrary, in the northwestern and even the central parts, it accumulates to depths of from 5 to 10 inches and sometimes remains on the ground for two days to a week. The average annual number of days with snow ranges from none at Charleston to five at Santuck.

The late autumn, winter, and early spring precipitation is almost entirely due to the passage of cyclonic storms. The late spring, summer, and early autumn rains are, with few exceptions, of convectional type. The exceptions are of two kinds, the first being due to the occasional passage over this part of the country of cyclonic storms that originate in the southwest, the second being the passage of West Indian hurricanes that originate in the Tropics. The latter are of more frequent occurrence especially in August and September, but seldom reach the westernmost parts.

The extreme limits of probable annual precipitation, or the absolute driest and wettest years, are not well defined in the accompanying tables owing to the shortness of the periods of observation, except at Charleston, where the range is between 29.7 and 78.4 inches. At Stateburg (twenty years) the range is between 32.6 and 60; at Columbia (sixteen years) the range is between 39.7 and 53.3; at Greenville (ten years) the range is between 42.5 and 77.8 inches.

If a deduction is permissible from so short a record, it appears that the extreme parts of the State have a greater variability, while the central parts have a fairly constant precipitation from year to year. The percentages of variability are much greater when the comparison is between seasons and still greater between months of like name. The accompanying tables do not include this data, nor have the periods of greatest number of consecutive days without rain been calculated.

Fogs are frequent along the coast and in the low country and in the winter season in other parts. The sand hills are almost free from them, the average annual number being but one day each year. At Charleston the average annual number is twenty-six days.

The record for prevailing winds is unsatisfactory, but there is so close an agreement between stations in the same parts of the State as to warrant the tentative statement that over the eastern parts the prevailing winds are from the southwest; in the north-central parts from the northeast, and in the western parts from the west. Destructive high winds are of rare occurrence and are of two kinds. The first, usually confined to the western parts, are tornadic; along the coast and adjoining regions they accompany West India hurricanes.

From the data in the accompanying tables it can be seen that the coast region has a semitropical climate; the upper portion has a temperate or subtemperate climate; in the central portions there is a gradual blending of the one into the other. This makes it possible to raise practically every variety of crop known to the United States in some portion of South Carolina.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Abbeville (<i>see</i> Trenton).		Western.		Hampton (<i>see</i> Beaufort).		Southern.	
Aiken.	Aiken.	Southwestern.	316	Horry (<i>see</i> Charleston).		Eastern.	
Anderson (<i>see</i> Clemson College).		Western.		Kershaw (<i>see</i> Stateburg).		North-central.	
Barnburg (<i>see</i> Blackville).		South-central.		Lancaster (<i>see</i> Santuck).		Northern.	
Barnwell.	Blackville.	do.	317	Laurens (<i>see</i> Greenville).		Northwestern.	
Beaufort.	Beaufort.	Southern.	320	Lee (<i>see</i> Stateburg).		East-central.	
Berkeley.	Trial.	Eastern.	318	Lexington (<i>see</i> Columbia).		Central.	
Charleston.	Charleston.	Southeastern.	319	Marion (<i>see</i> Society Hill).		Northeastern.	
Cherokee (<i>see</i> Santuck).		Northwestern.		Marlboro (<i>see</i> Society Hill).		do.	
Chester (<i>see</i> Santuck).		Northern.		Newberry (<i>see</i> Columbia).		Central.	
Charlestonfield (<i>see</i> Society Hill).		Northeastern.		Oconee.	Clemson College.	Western.	309
Clarendon (<i>see</i> Trial).		East-central.		Orangeburg (<i>see</i> Blackville).		Central.	
Colleton (<i>see</i> Beaufort).		Southern.		Pickens (<i>see</i> Clemson College).		Northwestern.	
Darlington.	Society Hill.	Northeastern.	312	Richland.	Columbia.	Central.	313
Dorchester (<i>see</i> Trial).		Southeastern.		Saluda (<i>see</i> Trenton).		Western.	
Edgefield.	Trenton.	Western.	315	Spartanburg (<i>see</i> Greenville).		Northwestern.	
Fairfield (<i>see</i> Columbia).		Central.		Sumter.	Stateburg.	Central.	314
Florence (<i>see</i> Trial).		Eastern.		Union.	Santuck.	Northwestern.	311
Georgetown (<i>see</i> Charleston).		do.		Williamsburg (<i>see</i> Trial).		Eastern.	
Greenville.	Greenville.	Northwestern.	310	York (<i>see</i> Santuck).		Northern.	
Greenwood (<i>see</i> Trenton).		Western.					

CLIMATOLOGY OF THE UNITED STATES.

STATE SUMMARY—SOUTH CAROLINA.

Temperature.										
Station.	Num-ber.	Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absol-ute maxi-mum.	Date.	Absol-ute mini-mum.	Date.	Average num-ber days with—	
		° F.	° F.	° F.	° F.		° F.		Maxi-mum above 90°.	Mini-mum below 32°.
Clemson College.....	1	60	72	49	102	August, 1903.....	- 7	February, 1839.....	61	69
Greenville.....	2	58	78	47	97	July, 1899.....	- 5	do.....	52	80
Santuck.....	3	61	72	47	105	August, 1900.....	-11	do.....	50	62
Society Hill.....	4	62	71	53	100	July, 1902.....	0	do.....	32	41
Columbia.....	5	64	74	53	106	August, 1900.....	- 2	do.....	64	38
Stateburg.....	6	63	72	54	105	do.....	3	do.....	36	28
Trenton.....	7	64	73	56	104	July, 1902.....	- 4	do.....	22	40
Aiken.....	8	63	72	54	102	August, 1874.....	3	December, 1880.....	24	20
Blackville.....	9	64	75	52	105	July, 1902.....	- 3	February, 1879.....	79	24
Trial.....	10	63	74	52	103	July, 1902.....	- 3	do.....	41	34
Charleston.....	11	66	73	59	104	July, 1879.....	7	do.....	21	9
Beaufort.....	12	66	75	59	104	July, 1902.....	7	do.....	36	16

Frost.											Precipitation.				
Station.	Num-ber.	Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.					
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.										
Clemson College.....	1	Oct. 31	Apr. 6	Oct. 15	Apr. 20	<i>Inches.</i> 51.2	<i>Inches.</i> 11.6	<i>Inches.</i> 15.9	<i>Inches.</i> 10.2	<i>Inches.</i> 13.5					
Greenville.....	2	Nov. 6	Apr. 5	Oct. 23	Apr. 25	53.0	12.6	16.3	9.9	14.2					
Santuck.....	3	Oct. 29	Apr. 7	Sept. 30	Apr. 30	48.0	11.6	13.6	10.2	12.6					
Society Hill.....	4	Nov. 15	Mar. 18	Oct. 27	Apr. 4	49.1	10.7	17.4	10.0	11.0					
Columbia.....	5	Nov. 8	Mar. 23	Oct. 19	Apr. 10	46.7	9.6	17.1	8.9	11.1					
Stateburg.....	6	Nov. 14	Mar. 29	Oct. 27	Apr. 9	44.4	10.1	15.3	8.4	10.6					
Trenton.....	7	Nov. 11	Mar. 21	Oct. 25	Apr. 13	52.1	10.6	17.1	10.3	14.1					
Aiken.....	8	Nov. 20	Mar. 11	Oct. 28	Apr. 9	48.9	11.6	15.5	10.5	11.3					
Blackville.....	9	Nov. 17	Mar. 13	Nov. 8	Mar. 23	48.4	10.9	16.6	9.1	11.8					
Trial.....	10	Nov. 5	Apr. 4	Oct. 10	Apr. 28	50.5	10.6	19.7	9.5	10.7					
Charleston.....	11	Nov. 30	Mar. 3	Nov. 9	Apr. 2	53.4	10.6	20.1	12.5	10.2					
Beaufort.....	12	Nov. 28	Mar. 8	Nov. 7	Apr. 1	48.3	9.1	19.3	11.7	8.2					

SOUTH CAROLINA.

Western Piedmont Region: OCONEE COUNTY. Station: CLEMSON COLLEGE.

Prof. C. C. NEWMAN, Observer.

[Established by Clemson College in January, 1892. Latitude, 34° 41' N. Longitude, 82° 50' W. Elevation, 850 feet.]

The country is rolling and hilly. The station occupies the crest of a moderate hill. The temperature readings have been obtained from maximum and minimum thermometers since the beginning of observations, although up to 1897 the instruments were not of the Weather Bureau standard; after that time the thermometers were supplied by the Weather Bureau. Standard shelters have been in use the whole time. The present location of the instruments is over the tin roof of the main building of the college. The rain gage is located in the center of the roof with no intervening objects to form wind currents, except a low tower about 30 feet distant on the eastern edge of the building.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	52	72	31	9	45	39	3.5	9	1.9	9.5	1.0	8.0	E.
January.....	41	52	77	30	5	46	38	4.6	10	2.0	5.2	0.4	2.0	E.
February.....	41	52	74	30	7	46	38	5.4	10	8.1	3.8	2.6	12.0	W.
Winter mean.....	41	52		30				13.5	29	12.0	18.5	4.0		E.
March.....	52	63	82	42	12	57	49	4.5	11	2.2	6.2	T.	T.	E.
April.....	58	71	88	46	24	63	54	3.9	9	3.4	6.7	0.0	0.0	W.
May.....	70	84	99	57	40	76	66	3.2	7	3.3	7.2	0.0	0.0	W.
Spring mean.....	60	73		48				11.6	27	8.9	20.1	T.		W.
June.....	76	88	100	65	42	79	73	5.8	12	5.4	7.9	0.0	0.0	W.
July.....	79	91	101	68	54	81	77	5.2	11	1.6	2.6	0.0	0.0	W.
August.....	79	90	102	67	56	82	76	4.9	9	2.7	13.2	0.0	0.0	W.
Summer mean.....	78	81		67				15.9	32	9.7	23.7	0.0		W.
September.....	72	84	100	61	38	76	69	3.9	6	4.2	6.8	0.0	0.0	NE.
October.....	62	75	92	49	25	67	60	3.1	6	3.9	0.3	0.0	0.0	W.
November.....	51	63	84	39	10	56	44	3.2	7	2.0	0.8	T.	T.	E.
Fall mean.....	62	74		50				10.2	19	10.1	7.9	T.		E.
Annual mean.....	60	72	102	49	7			51.2	107	40.7	70.2	4.0	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD APRIL 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1896	Dec. 3-6, 25-27.....	June 26; July 26, 29-31.	1902	Jan. 3-7, 11-14, 16, 17, 22, 23; Feb. 2-5, 8-11; Mar. 18; Dec. 26, 27.	June 12.
1897	Jan. 6-9, 27-30; Feb. 27, 28; Mar. 28; Dec. 1.	June 26; July 3; Aug. 28.	1903	Jan. 8, 9, 12-16, 18, 30; Feb. 17-24; Nov. 19, 20, 27, 28, 30; Dec. 1, 3, 4, 7, 8, 11, 12, 14, 16, 18, 27.	Aug. 25-29; Sept. 5, 6.
1898	Jan. 2; Feb. 1-6, 23; Nov. 27; Dec. 8, 11, 14, 15.	None.			
1899	Jan. 2, 8, 29; Feb. 8-10, 12-14; Mar. 7, 8; Dec. 30, 31.	Aug. 22; Sept. 4.			
1900	Jan. 2-6, 28-31; Feb. 1, 2, 17-19, 26; Dec. 12, 16.	Aug. 8, 10, 11, 19.			
1901	Jan. 4, 6, 17, 18, 25, 26, 31; Feb. 2, 5, 20, 21, 23, 24, 27; Mar. 5-7; Nov. 15-17, 20, 21, 25, 28; Dec. 15-22.	None.			

SOUTH CAROLINA.

Piedmont Region, Southern Escarpment: GREENVILLE COUNTY. Station: GREENVILLE.

S. A. CRITTENDEN, Observer.

[Established by the Signal Service in 1888. Latitude, 34° 50' N. Longitude, 82° 24' W. Elevation, 999 feet.]

This station is situated near the center of Greenville. The city is near the center of one of the counties of the northwestern tier, and is 25 miles from the Blue Ridge range of mountains, the summits of which in Greenville County form a part of the boundary line between South Carolina and North Carolina.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter, located 18 feet east of a large two-story frame dwelling.

The mean temperatures at this station were obtained by taking one-half of the sum of the monthly mean maximum and monthly mean minimum temperatures for each month. The rain gage is 25 feet from the nearest corner of a shed attached to the frame dwelling, and is located in a different part of the yard from the instrument shelter. It is also 30 feet from the nearest tree; the top of the gage is 12 inches above ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	40	52	72	29	9	44	35	3.9	9	3.8	8.9	1.2	10.5
January.....	39	53	75	28	6	44	36	4.4	11	5.8	5.0	0.3	2.0
February.....	40	52	74	28	-5	46	35	5.9	10	7.4	3.3	3.9	15.0
Winter mean.....	40	52		28				14.2	30	17.0	17.2	5.4	
March.....	50	61	84	38	13	54	47	5.3	12	7.5	8.7	0.3	3.5
April.....	56	69	88	44	24	64	52	4.2	9	4.6	7.1	T.	T.
May.....	67	79	94	55	38	72	64	3.1	8	0.8	7.5	0.0	0.0
Spring mean.....	58	70		46				12.6	29	12.9	23.3	0.3	
June.....	73	84	94	63	47	76	68	5.6	12	2.3	8.0	0.0	0.0
July.....	76	86	97	66	53	78	74	5.4	12	1.6	4.5	0.0	0.0
August.....	76	86	97	66	56	83	74	5.3	12	2.8	15.9	0.0	0.0
Summer mean.....	75	85		65				16.3	36	6.7	28.4	0.0	
September.....	71	82	96	60	38	74	66	3.9	7	2.3	7.4	0.0	0.0
October.....	60	73	89	47	25	64	58	2.6	6	2.0	0.8	0.0	0.0
November.....	50	63	82	37	14	55	43	3.4	7	1.6	0.7	T.	T.
Fall mean.....	60	73		48				9.9	20	5.9	8.9	T.	
Annual mean.....	58	70	97	47	-5			53.0	115	42.5	77.8	5.7	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Nov. 21.....	None.	1901	Jan. 5, 18, 19, 26, 29, 30;	None.
1895	Feb. 13; Dec. 6.....	Do.		Feb. 1, 2, 21-25, 27,	
1896	Feb. 17, 18, 21, 22; Dec.	Aug. 10, 24; Sept. 18.		28; Mar. 6-8; Nov.	
	3-5, 25-27.			16-20, 23, 29, 30; Dec.	
1897	Jan. 6-9, 28-31; Feb.	June 26; July 1, 2, 4, 5; Aug. 29, 31; Sept.		8, 16-23.	
	28; Dec. 1.	16.			
1898	Jan. 2-4; Feb. 1-5, 7,	None.	1902	Jan. 4-8, 12-15, 18, 23,	June 12; July 5.
	8, 22-24, 27; Mar. 1;			24; Feb. 3-6, 9-13,	
	Dec. 6-9, 11-16.			15, 18, 19; Mar. 18-	
1899	Jan. 2, 3, 8, 9, 29, 30;	July 16-18; Aug. 4, 5, 12, 19, 20-23, 25;		20; Nov. 28; Dec.	
	Feb. 9-16; Mar. 7-9;	Sept. 8.		26-29.	
	Dec. 5, 6, 21, 22, 26,		1903	Jan. 9, 10, 12-16; Feb.	None.
	27, 29-31.			17-21, 23, 24, 26; Nov.	
1900	Jan. 1-6, 28-31; Feb.	Aug. 9-12, 16, 17, 20, 22, 23.		19-21, 27-30; Dec. 1-	
	1-3, 18-20, 25-28.			4, 7-9, 11, 12, 14, 16-	
				19, 21, 22, 27-29, 31.	

SOUTH CAROLINA.

Piedmont Region: UNION COUNTY. Station: SANTUCK.

E. W. JETER, Observer.

[Established by the Weather Bureau in August, 1893. Latitude, 34° 42' N. Longitude, 81° 31' W. Elevation, 512 feet.]

The station is located about 3 miles due east of Santuck, and about 2 miles west of the Broad River, on a high ridge. It is on the dividing line between the hilly slope that leads to the river bottoms and the higher, more level country to the west. On the river bottoms frosts are of more frequent occurrence and on the higher ground of less frequent occurrence.

The instruments are exposed in a standard instrument shelter on a frame about 4½ feet above the ground. The surrounding soil is covered with grass. The shelter is located about 50 feet northeast of the residence. The rain gage is about 50 feet farther away from the residence and about 3½ feet above the ground. The means were obtained from the standard maximum and minimum thermometer readings, except during the first eighteen months after the establishment of the station, when they were deduced from the 7 a. m., 2 p. m., and 9 p. m. readings of an ordinary thermometer.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days, with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	43	54	80	32	1	47	38	3.4	8	1.7	6.5	1.6	15.0	W.
January.....	42	52	72	31	6	47	39	3.6	8	2.5	3.1	0.4	3.0	W.
February.....	42	52	75	31	-11	47	34	5.6	9	1.0	3.2	3.9	8.0	W.
Winter mean.....	42	53		31				12.6	25	5.2	12.8	5.9		W.
March.....	53	65	85	41	12	58	49	4.7	9	4.8	4.9	0.0	0.0	W.
April.....	59	72	92	46	25	65	54	4.1	8	4.7	6.8	0.0	0.0	W.
May.....	70	83	101	58	36	78	67	2.8	8	0.8	5.5	0.0	0.0	W.
Spring mean.....	61	73		48				11.6	25	10.3	17.2	0.0		W.
June.....	77	88	100	66	46	79	72	4.2	10	2.2	4.2	0.0	0.0	W.
July.....	79	90	104	68	52	81	76	4.5	9	8.5	2.7	0.0	0.0	W.
August.....	78	89	105	68	53	83	76	4.9	10	6.4	12.3	0.0	0.0	W.
Summer mean.....	78	89		67				13.6	29	17.1	19.2	0.0		W.
September.....	73	84	100	62	39	77	70	3.5	6	2.6	6.3	0.0	0.0	W.
October.....	61	73	89	49	27	66	57	3.7	6	3.5	9.9	0.0	0.0	W.
November.....	51	63	80	39	13	56	45	3.0	6	3.2	0.8	T.	T.	SW.
Fall mean.....	62	73		50				10.2	18	9.3	8.0	T.		W.
Annual mean.....	61	72	105	49	-11			48.0	97	41.9	57.2	5.9	15.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Feb. 25; Dec. 29, 30...	None.	1901	Jan. 5, 20, 26; Feb. 1, 6, 21, 24, 27; Mar. 6, 7, 17; Nov. 16-18, 20, 21, 26, 27, 29; Dec. 7, 8, 11, 16, 17-22.	July 30.
1895	Jan. 1, 13, 14; Feb. 7-11, 13-16, 23; Nov. 21; Dec. 4, 5, 14.	Do.	1902	Jan. 4-7, 12-14, 17, 18; Feb. 3, 5, 6, 9-11, 13, 17, 18; Mar. 19; Dec. 10, 26-28.	June 30; July 1, 3-7, 10, 17-19; Aug. 6, 11, 21.
1896	Jan. 4-7; Feb. 17, 18, 21, 22; Dec. 3, 6, 25, 26.	Do.	1903	Jan. 9, 12-16, 31; Feb. 18-20, 22, 23; Nov. 19, 20, 27-30; Dec. 1, 3, 4, 7, 8, 11, 12, 14, 16, 18, 19, 27, 28, 31.	May 24; July 27; Aug. 28.
1897	Jan. 7-9, 29-31; Dec. 1.	Do.			
1898	Jan. 3; Feb. 1-4, 6-8, 23; Nov. 25, 27, 28; Dec. 8, 13, 15.	May 30.			
1899	Jan. 2, 8, 9, 20; Feb. 9-15; Mar. 7, 8; Dec. 5, 21, 22, 26-29, 31.	June 8; July 13-17; Aug. 14, 20-22, 24.			
1900	Jan. 1, 5, 30; Feb. 1, 2, 17-19, 25, 26; Mar. 17; Dec. 12, 16.	Aug. 10-13, 15-22, 29; Sept. 13.			

SOUTH CAROLINA.

Pedee Section: DARLINGTON COUNTY. Station: SOCIETY HILL.

J. J. LUCAS, Observer.

[Established by the United States Weather Bureau in July, 1891. Latitude, 34° 50' N. Longitude, 79° 35' W. Elevation, 192 feet.]

This station is 130 miles north of Charleston, and 2½ miles west of the Great Pedee River. It is located on a hill about 100 feet above the tracks of the Atlantic Coast Line railway station, 1½ miles away. The maximum and minimum thermometers of standard Weather Bureau pattern are located against the wall of a brick dwelling, about 12 feet above ground, and in a box freely ventilated by means of lattice work. The shelter is placed in a recess on the north side of the building, free from direct or radiated heat. The rain gage, of standard Weather Bureau pattern, rests on a stone about 6 inches above ground, and is placed in a vegetable garden, remote from large trees or high fences.

The mean temperature has been calculated from the daily readings of the maximum and minimum thermometers since the establishment of the station.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	45	53	75	36	■	48	30	2.9	6	2.5	2.5	0.2	2.0	NE.
January.....	43	51	74	35	8	49	41	2.7	6	2.5	2.5	2.1	6.0	NE.
February.....	46	53	78	36	0	57	36	5.4	8	4.9	4.1	3.2	7.0	NE.
Winter mean.....	45	52	.....	36	.....	.....	.....	11.0	20	9.9	9.1	5.5	.....	NE.
March.....	55	65	88	46	19	61	51	3.2	8	2.4	3.1	0.1	1.5	NE.
April.....	62	71	91	52	33	67	56	4.1	7	3.0	3.8	0.0	0.0	NE.
May.....	71	81	98	62	42	76	66	3.4	11	4.2	2.4	0.0	0.0	SW.
Spring mean.....	63	72	.....	53	.....	.....	.....	10.7	24	9.6	9.3	0.1	.....	NE.
June.....	77	86	99	68	52	79	73	5.6	■	2.3	5.0	0.0	0.0	SW.
July.....	80	88	100	72	59	82	76	6.0	10	3.4	6.1	0.0	0.0	SW.
August.....	79	87	99	71	58	83	76	5.8	10	4.9	12.3	0.0	0.0	SW.
Summer mean.....	79	87	.....	70	.....	.....	.....	17.4	29	10.6	23.4	0.0	.....	SW.
September.....	73	82	■	64	41	77	71	4.1	6	2.0	9.6	0.0	0.0	NE.
October.....	62	72	88	53	32	66	59	3.5	6	2.8	6.3	0.0	0.0	NE.
November.....	56	62	84	44	17	66	46	2.4	6	5.3	0.9	0.0	0.0	NE.
Fall mean.....	64	72	.....	54	.....	.....	.....	10.0	18	10.1	16.8	0.0	.....	NE.
Annual mean.....	62	71	100	53	0	.....	.....	49.1	91	40.2	58.6	5.6	7.0	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Feb. 24; Dec. 28, 29, 31.	None.	1900	Jan. 1-3, 29, 31; Feb. 1, 17, 18.	None.
1895	Jan. 1, 12, 13; Feb. 7-9, 12, 13; Dec. 5.	Do.	1901	Feb. 1, 20, 23; Dec. 15-17, 19-21.	Do.
1896	Jan. 3-6; Feb. 20, 21; Dec. 3, 24, 25.	Do.	1902	Jan. 4-6, 13; Feb. 4; Dec. 26, 27.	July 4, 5.
1897	Jan. 27-29	Do.	1903	Jan. 8, 12; Feb. 17; Dec. 26.	None.
1898	Jan. 1; Feb. 1, 3; Dec. 14.	Do.			
1899	Jan. 1; Feb. 9, 11-13; Dec. 29, 30.	Do.			

SOUTH CAROLINA.

Red Hill and Sand Hill Region: RICHLAND COUNTY. Station: COLUMBIA.

J. W. BAUER, Observer.

[Established by Signal Service in June, 1887. Latitude, 34° 0' N. Longitude, 81° 3' W. Elevation, 222 feet.]

The station is located near the center of the city of Columbia, which is situated on the western edge of the Upper Pine Belt region, and the southern border of the Sand Hill region.

The general elevation of Columbia is slightly greater than that of the surrounding country, but less than that of the "High Hills of Santee," or the Sand Hills of Lexington.

At the establishment of the station it was located on the third floor of the Agricultural Hall building, and the thermometers and rain gage were exposed on the roof about 72 feet above the ground and about 5 feet above a tin roof. On June 8, 1895, the office was moved to the Federal Building, where both thermometers and the rain gage had sod exposures, the former about 5 feet above ground, the latter 3 feet. From this place the office was moved to the City Hall on February 15, 1901, where the instruments were given tin-roof exposures, with the thermometers 114 feet above the ground and 11 feet above the roof. On October 1, 1903, the office was moved to the 12-story Loan and Exchange Bank Building, southeast corner of Main and Washington streets, where the instruments were exposed on a tile-covered roof, 167 feet above the ground and 11 feet above the roof.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 5, 1887, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days, with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	48	58	77	37	9	58	42	In. 2.8	8	In. 2.3	In. 3.3	In. 0.9	In. 5.0	SW.
January.....	45	55	78	36	10	54	38	In. 3.3	10	In. 1.7	In. 7.3	In. 0.7	In. 4.9	NE.
February.....	47	57	82	38	2	58	37	In. 5.0	10	In. 5.3	In. 3.2	In. 2.6	In. 10.2	SW.
Winter mean.....	47	57		37				11.1	28	9.3	13.8	4.2		NE.
March.....	55	65	90	44	20	61	48	3.8	10	2.1	6.4	0.1	0.5	W.
April.....	63	74	96	52	28	69	56	2.6	7	1.4	5.9	0.0	0.0	SW.
May.....	72	84	101	61	40	78	69	3.2	10	1.7	3.8	0.0	0.0	SW.
Spring mean.....	63	74		52				9.6	27	5.2	16.1	0.1		SW.
June.....	79	89	103	68	47	81	74	4.3	12	2.9	3.8	0.0	0.0	SW.
July.....	81	91	105	71	54	83	77	6.1	13	5.0	5.5		0.0	SW.
August.....	80	89	106	70	56	85	77	6.7	13	6.0	9.6	0.0	0.0	SW.
Summer mean.....	80	90		70				17.1	38	13.9	18.9	6.0		SW.
September.....	74	84	104	65	42	79	72	3.5	8	5.2	1.5	0.0	0.0	NE.
October.....	63	74	92	53	32	68	60	3.1	7	4.4	1.5	0.0	0.0	NE.
November.....	54	65	85	44	21	60	49	2.3	7	1.7	1.7	0.2	3.3	NE.
Fall mean.....	64	74		54				89	22	11.3	4.7	0.2		NE.
Annual mean.....	64	74	106	53	2			46.7	115	39.7	53.5	4.5	10.2	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Feb. 25; Dec. 28-30....	June 13; Aug. 10.	1900	Jan. 1-4, 30; Feb. 1, 2, 18, 19, 25.	Aug. 8-10, 12, 13, 16, 18-22, 29; Sept. 13.
1895	Jan. 1, 13, 14; Feb. 7-10, 13, 14; Dec. 4, 6, 31.	June 1-3.	1901	Feb. 21, 24; Mar. 6, 7; Dec. 16-18, 20-22.	July 25.
1896	Jan. 4, 5; Feb. 18, 21, 22; Dec. 4, 5, 26.	July 29, 30; Aug. 10; Sept. 18.	1902	Jan. 4-6, 13; Feb. 5; Dec. 27, 28.	July 4-7.
1897	Jan. 28-31.....	July 1-3; Sept. 15.	1903	Jan. 13; Feb. 18; Nov. 22, 28; Dec. 27.	None.
1898	Jan. 2; Feb. 2-4; Dec. 14.	May 30.			
1899	Jan. 2; Feb. 9, 10, 12-15; Mar. 7, 8; Dec. 30, 31.	June 7-10; July 14-17; Aug. 4.			

SOUTH CAROLINA.

High Hills of Santee Region: SUMTER COUNTY. Station: STATEBURG.

W. W. ANDERSON, M. D., Observer.

[Established by the Signal Service in February, 1881. Latitude, 33° 55' N. Longitude, 80° 23' W. Elevation, 500 feet.]

The old village of Stateburg is situated on a spur of the noted range of hills called "The High Hills of Santee." In its topographical features the region is peculiar. In the briefest words it may be described as a miniature range of mountains forming a perfect dividing ridge for the distance of 30 to 40 miles between the Wateree River on the west and the Black and Pocotaligo rivers on the east.

The thermometers used were of standard pattern, but the early exposure was not satisfactory. From August, 1887, maximum and minimum thermometers of Weather Bureau pattern were used.

The rain gage used from 1881 to February, 1893, was a 9-inch conical gage, having a 5-inch receiver, and was made by Benjamin Pike. It was located about 35 feet southwest of the dwelling, in an open space having a diameter of about 60 feet and surrounded on all sides, except toward the dwelling, by trees varying from 25 to 35 feet in height. In February, 1893, a standard Weather Bureau gage was received and set on the surface of the ground, in the center of the garden, 60 feet or more from the nearest tree or building.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1881, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	47	56	75	38	6	57	43	3.0	8	2.5	2.0	0.2	.....	E.
January.....	45	54	78	37	12	54	38	3.4	0	2.5	2.9	1.0	4.0	SW.
February.....	49	57	80	40	5	57	37	4.2	9	7.5	7.3	3.9	14.7	E.
Winter mean.....	47	56	.....	38	.....	.....	.....	10.6	26	6.5	12.2	5.1	.....	E.
March.....	55	66	87	51	20	62	48	3.7	10	4.4	4.2	T.	0.3	SW.
April.....	62	73	91	53	32	68	57	3.1	8	1.4	3.0	0.0	0.0	S.
May.....	72	82	101	62	44	77	66	3.3	8	3.1	1.7	0.0	0.0	SW.
Spring mean.....	63	74	.....	54	.....	.....	.....	10.1	26	8.9	8.9	T.	.....	SW.
June.....	77	87	100	68	53	80	72	4.9	12	5.4	18.4	0.0	0.0	SW.
July.....	79	88	104	72	50	84	75	5.0	12	4.8	3.6	0.0	0.0	SW.
August.....	78	87	105	71	58	85	74	5.4	14	2.1	7.5	0.0	0.0	SW.
Summer mean.....	78	87	.....	70	.....	.....	.....	15.3	38	12.3	29.5	0.0	.....	SW.
September.....	74	82	99	66	42	80	70	3.2	8	2.0	4.8	0.0	0.0	E.
October.....	64	73	89	55	33	70	59	3.1	7	2.0	5.0	0.0	0.0	E.
November.....	54	64	84	46	21	61	51	2.1	7	0.9	1.6	0.0	0.0	E.
Fall mean.....	64	73	.....	56	.....	.....	.....	8.4	22	4.9	9.4	0.0	.....	E.
Annual mean.....	63	72	105	54	3	.....	.....	44.4	112	32.6	60.0	5.1	14.7	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28-30.....	None.	1900	Jan. 1-4, 30; Feb. 1, 2, 18, 19, 25.	July 22; Aug. 8-14, 18, 19-22, 29.
1895	Jan. 1, 13, 14; Feb. 7-10, 13, 14.	Do.	1901	Feb. 24; Mar. 6, 7; Dec. 16-18, 20-22.	None.
1896	Jan. 3, 4; Feb. 17, 18, 21; Dec. 4, 25.	Do.	1902	Jan. 4-6, 13; Feb. 5; Dec. 27, 28.	July 4-7, 17.
1897	Jan. 28, 29.....	July 1.	1903	Jan. 13; Feb. 18; Nov. 27; Dec. 27.	None.
1898	Jan. 2; Feb. 2; Dec. 14.	May 31; June 14.			
1899	Jan. 2; Feb. 9, 11-15; Mar. 7, 8; Dec. 30, 31.	July 1, 4, 15, 17; Aug. 3-5.			

SOUTH CAROLINA.

The "Ridge" Section: EDGEFIELD COUNTY. Station: TRENTON.

C. A. LONG, Observer.

[Established by the Weather Bureau in May, 1893. Latitude, 33° 45' N. Longitude, 81° 45' W. Elevation, 620 feet.]

This station is situated about 2 miles northwest of the town of Trenton, on a ridge that begins near Augusta, Ga., and extends northeastward to Columbia, S. C., and that has a more or less gradual slope toward the east and west.

The maximum and minimum thermometers are exposed in a latticed shelter, on a frame 6 feet above the ground. The outside dimensions of the shelter are 30 inches long by 20 inches wide and 30 inches in height, with a double roof that allows free circulation of air between. The thermometers are fastened a little farther back than midway of the shelter and the bulbs are elevated 7 feet above the ground, which is sodded under the shelter. The rain gage is of standard Weather Bureau pattern and is located in a garden with its top 4 feet above the sod. The gage is distant 42 feet from the nearest fence and 96 feet from the dwelling; there are no large trees near it.

Tabulated data are for the period of observation May 1, 1893, to December 31, 1903, and the daily means were obtained from the tridaily readings from May, 1893, to January, 1894, inclusive, and from the daily extremes for the time following.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	47	55	72	39	8	51	46	3.5	8	3.3	5.7	0.9	4.8	W.
January.....	47	54	73	38	9	52	42	3.6	10	3.6	3.9	0.4	3.0	W.
February.....	47	56	75	38	— 4	52	41	7.0	9	8.7	3.5	2.6	7.3	W.
Winter mean.....	47	55	73	38	—	51	46	14.1	27	15.6	13.1	3.9	—	W.
March.....	57	66	87	49	21	62	53	4.1	10	2.3	4.3	T.	0.5	S.
April.....	63	72	91	53	33	70	58	3.8	8	2.0	6.7	0.0	0.0	S.
May.....	73	83	98	64	42	78	70	2.7	7	1.8	5.9	0.0	0.0	S.
Spring mean.....	64	74	91	55	38	70	60	10.6	25	6.1	16.9	T.	—	S.
June.....	79	88	99	70	53	81	75	4.8	10	3.5	7.2	0.0	0.0	S.
July.....	81	89	104	73	58	84	78	5.7	11	8.8	3.3	0.0	0.0	S.
August.....	80	88	101	72	60	84	79	6.6	11	2.9	8.0	0.0	0.0	S.
Summer mean.....	80	88	99	72	58	81	76	17.1	32	15.2	18.5	0.0	—	S.
September.....	76	84	98	67	48	80	72	3.7	5	3.6	7.2	0.0	0.0	S.
October.....	65	73	87	57	32	69	62	3.6	5	0.8	2.9	0.0	0.0	S.
November.....	56	64	79	48	24	62	51	3.0	6	3.1	1.1	T.	T.	S.
Fall mean.....	66	74	87	57	38	70	61	10.3	16	7.5	11.2	T.	—	S.
Annual mean.....	64	73	91	56	— 4	70	61	52.1	100	44.4	59.7	3.9	7.3	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28-30.....	None.	1900	Jan. 1-4, 30.....	Aug. 9, 20, 22.
1895	Jan. 1, 13, 14; Feb. 7-10, 13, 14.	Do.	1901	Feb. 24; Dec. 16-18, 21, 22.	None.
1896	Jan. 5; Feb. 18, 21....	Do.	1902	Jan. 4, 5, 12-14; Feb. 3-5, 11; Dec. 27, 28.	July 4-6, 10.
1897	Jan. 28-30.....	Do.	1903	Jan. 13; Feb. 17, 18; Dec. 27.	July 27; Aug. 28
1898	Jan. 2; Feb. 2.....	Do.			
1899	Feb. 9, 12-15; Mar. 7, 8; Dec. 30.	Do.			

SOUTH CAROLINA.

Sand Hill Region: AIKEN COUNTY. Station: AIKEN.

C. F. MCGAHAN, Observer.

[Established by Dr. W. H. Geddings in January, 1873. Latitude, 33° 32' N. Longitude, 81° 34' W. Elevation, 565 feet.]

This station is in a village located on a sand ridge that stretches across the State from the Savannah River near Augusta, Ga., to the intersection of the North Carolina line by the Great Pedee River. These hills attain their highest elevation in Aiken, with the exception of a place in Lexington County that is nearly 200 feet higher. The ridge on which the town is located forms the watershed between the Savannah and the Edisto rivers. The thermometers are exposed in a standard Weather Bureau instrument shelter, 5 feet above the ground and 45 feet distant from the nearest building, in an open, unshaded space that affords free circulation of air. The rain gage, of standard Weather Bureau pattern, is 30 feet west of the house in an open lot; the top of the gage is 3 feet above ground. The thermometers are standard Weather Bureau instruments.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1873, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.				Mean humidity.	
	Mean.	Mean of the maxi- ma.	Absol- ute maxi- mum.	Mean of the mini- ma.	Absol- ute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Rela- tive, 7 a. m.	Rela- tive, 9 p. m.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	P. ct.	P. ct.
December.....	48	57	75	39	3	58	42	3.1	7	4.2	4.5	70	64
January.....	45	53	78	36	6	56	38	4.1	8	4.3	4.0	68	67
February.....	50	59	82	41	5	58	39	4.1	7	1.9	5.9	69	63
Winter mean....	48	56	.....	39	.....	.....	.....	11.3	22	10.4	14.4	69	65
March.....	54	63	84	44	20	62	48	4.6	7	0.6	7.9	65	58
April.....	63	73	91	54	27	61	57	3.2	6	1.6	1.6	66	57
May.....	72	82	97	63	40	76	64	3.8	6	2.3	6.7	66	60
Spring mean....	63	73	.....	54	.....	.....	.....	11.6	19	4.5	16.2	66	58
June.....	78	86	101	70	46	83	74	4.3	8	1.8	5.4	71	65
July.....	79	87	101	70	50	86	76	4.8	9	3.5	4.2	70	67
August.....	78	86	102	71	56	83	76	6.4	11	6.5	5.9	75	70
Summer mean....	78	86	.....	70	.....	.....	.....	15.5	28	11.8	15.5	72	67
September.....	73	81	94	64	44	80	70	4.7	6	5.7	12.1	78	71
October.....	63	72	90	54	32	71	60	3.1	6	1.5	5.5	72	65
November.....	55	64	84	45	19	59	50	2.7	6	2.9	2.2	69	64
Fall mean.....	64	72	.....	54	.....	.....	.....	10.5	18	10.1	19.8	73	67
Annual mean....	63	72	102	54	3	.....	.....	48.9	87	36.8	65.9	70	64

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Minimum below 22 degrees.—Dec. 29, 30, 1894; Jan. 1, 12, 13; Feb. 7-10, 12-14, 1895; Jan. 5, 12-14; Feb. 5, 11, 18; Dec. 26, 27, 1902; Jan. 13, Feb. 17, 18; Nov. 19, 27, 28; Dec. 3, 11, 27, 1903.

SOUTH CAROLINA.

Upper Pine Belt: BARNWELL COUNTY. Station: BLACKVILLE.

G. D. C. LANGE, Observer.

[Established by the Signal Service in May, 1884. Latitude, 33° 21' N. Longitude, 81° 25' W. Elevation, 206 feet.]

Blackville is situated on the watershed between the South Edisto and Saltkahatchie rivers. The surrounding country is rolling, but very nearly level. The station is located in the center of the town.

The maximum and minimum thermometers in use since the station was opened have been of the standard Weather Bureau pattern, and have been exposed in a standard pattern shelter, made of lattice, with solid floor and double roof, allowing a free circulation of air. The shelter is placed on four posts high enough to bring the instruments on a level with the eye of the observer. The rain gage is 5 feet north of the instrument shelter and fastened to a post of a 5-foot high fence, bringing the top of the gage about 5 feet and 6 inches above the ground. The mean temperature values have always been obtained from the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 25, 1884, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	46	58	80	36	14	50	41	3.7	8	4.7	2.6	0.1	1.4	NW.
January.....	46	55	80	35	12	51	42	3.1	9	2.4	5.0	0.2	1.8	NE.
February.....	46	58	79	34	- 3	52	38	5.0	9	8.3	6.5	0.1	6.6	NW.
Winter mean.....	46	57		35				11.8	26	15.4	14.1	0.4		NW.
March.....	57	68	91	46	19	62	52	3.7	10	1.6	2.0	T.	T.	NE.
April.....	62	75	95	49	20	60	57	3.5	10	2.1	2.4	0.0	0.0	SW.
May.....	73	86	102	61	42	78	71	3.7	8	1.5	1.7	0.0	0.0	NE.
Spring mean.....	64	76		52				10.9	28	5.2	6.1	T.		NE.
June.....	80	91	103	68	42	83	76	5.5	14	5.6	8.6	0.0	0.0	NE.
July.....	82	92	105	70	57	84	79	5.2	14	6.7	3.4	0.0	0.0	SW.
August.....	80	90	104	70	54	84	77	5.9	15	2.7	7.9	0.0	0.0	SW.
Summer mean.....	81	91		69				16.6	43	15.0	19.9	0.0		SW.
September.....	75	85	100	65	42	79	71	4.0	9	1.1	2.5	0.0	0.0	NE.
October.....	64	76	95	52	30	60	60	3.1	7	0.4	9.6	0.0	0.0	NE.
November.....	56	67	85	44	19	60	52	2.0	5	1.4	2.5	0.0	0.0	NE.
Fall mean.....	65	76		54				9.1	21	2.9	14.6	0.0		NE.
Annual mean.....	64	75	105	52	- 3			48.4	118	38.5	54.7	0.4	6.6	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	No record.	June 13.	1900	Jan. 1-4, 30; Feb. 1, 2, 18, 19.	July 7, 8; Aug. 10, 11, 19-24.
1895	Jan. 1, 13; Feb. 7-11, 13, 14; Dec. 4-8.	June 1-4, 2, 5.	1901	Feb. 2, 4, 25; Dec. 17-19, 21-23.	July 11, 25, 26.
1896	Jan. 2, 4-6; Feb. 18, 19, 21-23; Dec. 26.	June 27, 29; Aug. 1, 11, 12; Sept. 19.	1902	Jan. 13-15; Dec. 27-29.	May 4; June 30; July 1-7; Aug. 21.
1897	Jan. 28-30.	June 15, 19, 26, 28; July 1-3.	1903	Jan. 13, 14; Feb. 18, 19; Nov. 28; Dec. 27.	July 27, 28; Aug. 26, 27.
1898	Jan. 2, 3; Feb. 2-5.	May 30, 31; June 10-13, 27-30; July 1, 2, 21, 22.			
1899	Feb. 9, 12-16; Dec. 30, 31.	June 9-11, 16; July 16, 18.			

SOUTH CAROLINA.

Lower Pine Belt: BERKELEY COUNTY. Station: TRIAL.

ETSELL GAILLARD, Observer.

[Established by the Signal Service in July, 1886. Latitude, 33° 25' N. Longitude, 80° 18' W. Elevation, 85 feet.]

This station is located 53 miles from the coast and 2½ miles south of the Santee River. The surrounding country is level. The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter 125 feet south of the dwelling of the observer. The door of the shelter opens toward the north, and the height of the shelter from the sod is 5 feet. The rain gage is located in an open space, and is free from any interference by large trees or buildings. The top of the gage is 3 feet above the ground; there is a low picket fence within 30 feet of the gage, but otherwise the surroundings are open for over 100 feet.

Tabulated data are for the period of observation January 1, 1886, to December 31, 1903, and the daily means were obtained from the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	49	60	85	38	10	54	41	3.0	6	2.4	5.0	0.1	1.0	W.
January.....	46	58	82	35	9	54	41	3.5	8	2.9	0.9	0.1	0.4	W.
February.....	48	58	82	37	- 3	54	40	4.2	8	4.0	0.6	1.7	8.0	NW.
Winter mean.....	48	59	.....	37	.....	.....	.....	10.7	22	9.3	6.5	1.9	.....	W.
March.....	55	67	90	45	13	62	50	3.6	8	3.3	3.1	0.0	0.0	SW.
April.....	61	73	92	50	26	69	54	2.5	7	3.1	5.4	0.0	0.0	SW.
May.....	70	82	97	59	38	76	67	4.5	8	6.7	6.3	0.0	0.0	SW.
Spring mean.....	62	74	.....	51	.....	.....	.....	10.6	23	13.1	14.8	0.0	.....	SW.
June.....	76	84	99	66	43	82	73	5.8	12	10.0	7.2	0.0	0.0	W.
July.....	79	88	103	70	54	82	75	6.2	12	1.1	3.6	0.0	0.0	SW.
August.....	78	88	101	69	56	80	73	7.7	13	3.9	15.2	0.0	0.0	W.
Summer mean.....	78	87	.....	68	.....	.....	.....	19.7	37	15.0	32.0	0.0	.....	W.
September.....	72	84	101	64	39	77	69	3.9	8	2.6	3.0	0.0	0.0	NE.
October.....	63	75	91	52	29	68	58	3.1	6	0.5	4.9	0.0	0.0	NE.
November.....	56	69	92	43	13	64	52	2.5	6	1.3	6.1	0.0	0.0	NW.
Fall mean.....	64	76	.....	53	.....	.....	.....	9.5	20	4.4	14.0	0.0	.....	NE.
Annual mean.....	63	74	103	52	- 3	.....	.....	50.5	102	41.8	67.3	1.9	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year	Minimum below 22°.	Maximum 100° or above.	Year	Minimum below 22°.	Maximum 100° or above.
1894	Feb. 6; Dec. 28-30....	None.	1901	Jan. 14, 18, 20, 26, 29; Feb. 1, 2, 6, 21, 24, 25; Mar. 7; Nov. 16, 18, 21, 29; Dec. 8, 17, 18, 20-23.	None.
1895	Jan. 1, 13, 14; Feb. 7-10, 13, 14; Dec. 6, 7.	Do.	1902	Jan. 5-7, 12-14, 18; Feb. 5, 10, 11, 13; Mar. 18-20; Dec. 27, 28.	July 1, 4-7.
1896	Jan. 2, 5, 6; Feb. 18, 21, 22; Dec. 26.	Sept. 18.	1903	Jan. 9, 13, 16; Feb. 18; Nov. 28, 30; Dec. 4, 7, 8, 12, 18, 19.	None.
1897	Jan. 28-30.....	None.			
1898	Jan. 2; Feb. 2, 4.....	Do.			
1899	Jan. 2, 8; Feb. 8, 12-15; Mar. 7, 8; Dec. 27, 29-31.	Do.			
1900	Jan. 1-4, 28-31; Feb. 1, 18-20, 25, 26; Dec. 17, 18.	Aug. 20.			

SOUTH CAROLINA.

Coast Region: CHARLESTON COUNTY. Station: CHARLESTON.

L. N. JESUNOVSKY, Local Forecaster.

[Established by the Signal Service in November, 1870. Latitude, 32° 47' N. Longitude, 79° 56' W. Elevation, 10 feet.]

Charleston, S. C., with a mean elevation of 9 feet above mean high tide, is situated on a narrow strip of mainland ranging in width from three-fourths of a mile in the southern section to 2 miles in the northern section and 6 miles in length, commonly called the "Charleston Neck," between the Ashley and Cooper rivers, is within 3 miles of the Atlantic Ocean.

The Carolina Savings Bank Building was occupied from January 1, 1873, to January 31, 1897. On February 1, 1897, quarters were taken in the United States custom-house. Both locations, the old and new, are in the eastern and lower portion of the city. On February 1, 1897, the instruments were removed to the custom-house park, in the double-roofed flat-work shelter. The elevation of the thermometers above the sod is 14.4 feet. The rain gage, snow gage, anemometer, wind vane, and sunshine recorder, in their new location, are erected on a large board platform upon the apex of the United States custom-house, and the elevation of each is recorded as follows: Height of the top of the rain gage above the roof, 3 feet, above the ground, 76 feet; anemometer cups, above roof, 19 feet, above ground, 92 feet; wind vane, above roof, 21 feet, above ground, 94 feet; sunshine recorder, above roof, 5 feet, above ground, 77 feet. These instruments are well exposed, the building upon which they are located being more than 400 feet distant from and 20 feet higher than any other structure in the neighborhood.

The length of record is as follows: For temperature, from January 1, 1871, to December 31, 1903. For frost, from January 1, 1871, to December 31, 1903. Previous to January 1, 1889, a minimum temperature of 32° and a clear sky were recorded as a killing frost. For rainfall, from January 1, 1871, to December 31, 1903. For snowfall, from January 1, 1885, to December 31, 1903. For days with 0.01 inch or more of precipitation, from January 1, 1877, to December 31, 1903. For wind, prevailing direction of, January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 51	° F. 59	° F. 78	° F. 44	° F. 13	° F. 60	° F. 44	In. 3.2	9	1.8	5.8	In. T.	In. 0.5	P.ct. 80	Grs. 2.93	P.ct. 76	Grs. 3.32	Hr. 155	P.ct. 50	N. N.
January.....	50	57	80	43	10	59	43	3.6	10	2.2	0.6	T.	1.9	79	2.80	75	3.06	155	51	N.
February.....	52	60	81	45	7	61	41	3.4	10	3.6	2.4	T.	3.2	79	3.00	75	3.28	140	48	SW.
Winter mean.....	51	58	79	44	10	60	43	10.2	29	7.6	8.8	T.	.....	79	2.91	75	3.22	150	50	SW.
March.....	58	65	86	50	24	64	52	3.8	10	2.4	2.5	T.	T.	80	3.62	76	3.95	186	53	SW.
April.....	65	72	89	57	32	70	59	3.2	8	1.6	4.9	0.0	0.0	75	4.61	74	4.70	240	63	SW.
May.....	73	80	98	66	45	77	69	3.6	9	4.3	3.8	0.0	0.0	75	6.18	75	6.38	279	66	SW.
Spring mean.....	65	72	88	58	33	72	64	10.6	27	8.3	11.2	T.	.....	77	4.80	75	5.01	235	61	SW.
June.....	79	86	100	73	51	83	76	5.4	11	1.2	15.0	0.0	0.0	78	7.67	79	8.27	270	61	SW.
July.....	82	88	104	76	64	85	79	7.4	12	5.5	11.3	0.0	0.0	79	8.38	80	8.75	248	54	SW.
August.....	81	87	103	75	62	84	78	7.3	14	5.0	5.1	0.0	0.0	82	8.43	81	8.86	217	51	SW.
Summer mean.....	81	87	99	75	62	84	78	20.1	37	11.7	31.4	0.0	.....	80	8.16	80	8.63	245	55	SW.
September.....	76	82	95	70	49	80	72	5.5	10	0.4	11.3	0.0	0.0	82	6.98	79	7.63	210	57	NE.
October.....	67	74	93	60	39	72	62	4.0	8	0.9	14.3	0.0	0.0	80	5.08	76	5.33	186	55	NE.
November.....	58	66	83	51	23	63	53	3.0	8	0.8	1.4	0.0	0.0	80	3.75	75	4.17	186	58	NE.
Fall mean.....	67	74	90	60	37	72	61	12.5	26	2.1	27.0	0.0	.....	81	5.27	77	5.71	194	57	NE.
Annual mean.....	66	73	104	60	7	77	64	53.4	119	29.7	78.4	T.	3.2	79	5.29	77	5.64	206	56	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 27; Feb. 5, 16, 25; Dec. 27, 28-30.	Aug. 9, 10; Sept. 10.	1900	Jan. 1-4, 29-31; Feb. 1, 2, 17-19, 25.	July 6, 7; Aug. 8, 9, 13, 14, 17, 18, 20, 21.
1895	Jan. 1, 13-15; Feb. 7-16; Dec. 4, 6, 14, 31.	June 1, 2; July 10; Aug. 19.	1901	Jan. 19, 26; Feb. 1, 21, 23-25; Mar. 6, 7; Nov. 17; Dec. 16-23.	June 25.
1896	Jan. 4-6; Feb. 17, 18, 20-22; Dec. 3, 4, 25, 26.	May 12; July 30; Aug. 3, 9.	1902	Jan. 4, 5; Feb. 5, 9-11, 14, 18; Mar. 19; Dec. 26-28.	June 26-30; July 1, 4-6; Aug. 20, 21.
1897	Jan. 27-31.....	June 14, 25, 30; July 1, 2.	1903	Jan. 9, 12-14; Feb. 17, 18; Nov. 27, 28, 30; Dec. 1, 18, 26, 27.	July 19; Aug. 27-29.
1898	Jan. 2, 3; Feb. 1-4, 22; Nov. 27; Dec. 10.	May 29, 30; July 17-20.			
1899	Jan. 2; Feb. 8, 9, 11-15; Mar. 7, 8; Dec. 26, 29-31.	May 18; June 14, 15; July 29; Aug. 3-7, 18, 25; Sept. 7.			

SOUTH CAROLINA.

Coast Region, Sea Island Section: BEAUFORT COUNTY. Station: BEAUFORT.

S. M. BENTON, Observer.

[Established by the Signal Service in May, 1889. Latitude, 32° 24' N. Longitude, 80° 46' W. Elevation, 28 feet.]

This station is located on the western side of Port Royal Island, 7 miles from the town of Beaufort, and on the eastern shore of Broad River, an arm of the sea that at this point is a channel nearly 2 miles in width. The opposite shore (on the mainland) is 4½ miles distant; the rest of the distance between the station and Beaufort is made up of salt marshes and intervening smaller channels. The maximum and minimum thermometers are exposed in a standard shelter furnished by the Weather Bureau. The rain gage is placed in an open spot, 150 feet east of the observer's house, and 60 feet from the nearest tree. The top of the gage is 4 feet above the ground. Until June 1, 1893, the temperature record consisted of the readings of a dry-bulb thermometer, made at 7 a. m., 2 p. m., and 9 p. m. The daily mean was obtained in the usual way. After June 1, 1893, the monthly mean was calculated from the daily extremes. During the first-named period the readings may possibly have failed to show the extremes of heat and cold.

The precipitation record begins in August, 1886, but until May, 1889, when the measurements were made by a standard gage, the record is of doubtful value.

Capt. Henry D. Elliott was observer until January, 1899, when he was succeeded by the present observer.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	52	60	79	42	13	58	47	2.1	7	1.6	2.2	0.1	1.0	NW.
January.....	50	58	75	42	18	59	43	2.5	8	3.3	0.2	T.	1.0	NW.
February.....	52	59	80	42	7	60	42	3.6	9	4.5	0.5	0.3	2.2	NW.
Winter mean.....	51	59	.....	42	.....	.....	.....	8.2	24	9.4	2.9	0.4	.....	NW.
March.....	59	69	82	52	26	64	56	3.6	8	2.3	2.7	T.	0.5	S.
April.....	65	74	89	56	38	69	60	2.2	6	3.1	3.8	0.0	0.0	S.
May.....	74	83	98	66	49	78	71	3.3	8	2.2	1.1	0.0	0.0	S.
Spring mean.....	66	75	.....	58	.....	.....	.....	9.1	22	7.6	7.6	T.	.....	S.
June.....	81	88	103	73	58	82	77	5.3	11	8.6	2.5	0.0	0.0	S.
July.....	82	90	104	75	63	84	80	6.0	12	4.5	9.3	0.0	0.0	S.
August.....	82	89	103	74	63	84	78	8.0	12	3.2	24.7	0.0	0.0	S.
Summer mean.....	81	89	.....	74	.....	.....	.....	19.3	35	16.3	36.5	0.0	.....	S.
September.....	77	85	98	70	53	80	75	5.6	7	0.4	2.6	0.0	0.0	NE.
October.....	68	77	90	61	38	72	64	3.5	6	0.5	6.0	0.0	0.0	NE.
November.....	59	68	86	51	24	64	54	2.6	6	1.4	5.7	0.0	0.0	NE.
Fall mean.....	68	77	.....	61	.....	.....	.....	11.7	19	2.3	14.3	0.0	.....	NE.
Annual mean.....	66	75	104	59	7	.....	.....	48.3	100	35.6	61.3	0.4	2.2	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 27; Feb. 16, 25; Mar. 27; Nov. 12; Dec. 27-30.	Aug. 10, 11, 14-17; June 13.	1901	Jan. 14, 26; Feb. 1, 2, 21, 23-25; Mar. 6-8; Nov. 18, 29; Dec. 7, 16-22.	June 25, 26, 30; July 12.
1895	Jan. 1, 13, 14; Feb. 7-11, 13-15; Dec. 4, 6, 14.	Aug. 19.			
1896	Jan. 2, 4-6; Feb. 17, 18, 21, 22; Dec. 3, 4, 25, 26.	May 11, 12; June 1, 25-27, 29; July 14, 23-26, 29-31; Aug. 3, 10; Sept. 17, 18.	1902	Jan. 4-7, 12-14, 17, 18; Feb. 3, 5, 10, 11, 14, 18; Mar. 7, 19; Dec. 25-28.	May 3, 4; June 27, 30; July 1, 2, 4-7, 11, 17; Aug. 13, 20-22; Sept. 2.
1897	Jan. 6-8, 28-31.....	June 14, 15, 18, 20, 25-28, 30; July 1-3; Aug. 2.			
1898	Jan. 2, 3; Feb. 1-4, 22; Nov. 27; Dec. 6, 13.	May 29, 30; June 13, 14, 26, 28, 29; July 17-21.	1903	Jan. 9, 13, 14; Feb. 17, 18, 20; Nov. 19, 20, 27, 28; Dec. 1, 3, 4, 7, 8, 16, 18, 19, 21, 27.	July 21, 23; Aug. 26-29.
1899	Jan. 2, 20; Feb. 8, 9, 12-15; Mar. 7, 8; Dec. 5, 26, 27, 29-31.	May 18, 21; June 14, 15, 21; July 14, 18, 29; Aug. 3-7, 13, 17, 19.			
1900	Jan. 1-4, 30; Feb. 1, 2, 18-20, 25, 26; Dec. 18.	July 6, 7; Aug. 9, 12-14, 17-24; Sept. 28.			

GEORGIA.

By JOHN B. MARBURY,
Local Forecaster.

GEORGIA.

Physical features.—Georgia is almost rectangular in shape, with its longest sides running north and south about $4\frac{1}{2}^{\circ}$ of latitude from the parallel of 35° north, and embraces 59,475 square miles. Its greatest length from north to south is about 320 miles and its breadth from east to west 254 miles. The northern part of the State is diversified by mountains, hills, and valleys, drained by numerous rivers, some of which are navigable, and nearly all afford valuable water power. From an extensive area of nearly level surface in the south and along the Atlantic coast there is a steady increase in altitude through undulating hills to the mountain regions of the northern part of the State, where elevations of 5,000 feet are found. In the extreme south the orange and banana have their home, while on the elevated peaks of the mountains of north Georgia are found plants indigenous to the Far North.

The State is divided by bold lines into three divisions—southern, middle, and northern Georgia—each having, some prominent characteristic throughout its extent. The first of these natural divisions, beginning on the south, southern or lower Georgia, extends from Florida and the Atlantic coast northward to a line running from Augusta to Columbus. This is an approximately level, sandy region, covering more than half of the State, and gradually rises from sea level to about 500 feet above. Beginning with low, marshy lands on the coast, the surface rises by terraces first to the height of 12 or 15 feet above sea level; next, 30 or 40 miles inland, to the height of 75 or 100 feet. Beyond this the surface varies from nearly level to undulating and becomes hilly in the upper or northern part.

Middle Georgia is a broad, hilly region, having few elevations that can be designated as mountains, and these, with but few exceptions, are such as would hardly be dignified as ridges in the more northern part of the State. Lands too steep for the plow are rare over the major portion of this area. Pine Mountain, in Harris County, and Graves Mountain, in Lincoln County, are elevations of a few hundred feet above the surrounding country that form conspicuous features in the landscape.

Upper or north Georgia—that portion of the State lying north of the thirty-fourth parallel—embraces a section with striking peculiarities of surface as well as variety of soil and climate, varying in elevation from 1,000 to 5,000 feet in the northeast to from 600 to 2,500 feet in the northwest.

About 3,000 square miles near the Atlantic coast have an elevation of 100 feet or less above sea level; 29,000 square miles, or about half the State, range from 100 to 500 feet; 20,000 square miles, 500 to 1,000 feet; and 6,000 square miles are above the altitude of 1,000 feet. A large part of this last area consists of steep ridges and mountains, some of which, in the Blue Ridge, reach an elevation of fully 5,000 feet above mean tide water.

Chattahoochee Ridge is a prominent water divide, reaching nearly across the State from Habersham County in the northeast to Troup County on the western boundary. Atlanta is situated on the crest of this ridge.

Temperature.—The normal annual temperature for the State is 63° ; for the northern division, 60° ; for the middle division, 64° ; and for the southern division, 66° . Elevation above sea level, proximity to the ocean and Gulf of Mexico, and latitude are the chief factors that cause the departures from the State normal in the three climatic divisions. The highest mean temperatures are found over the southern division, due to its geographical location, its proximity to large bodies of water, and the character of the soil. A perceptible decrease in the annual mean is noticed over the middle division, agreeing within a degree with that for the entire State. The lowest annual mean temperatures occur in the northern or upper division and average about 6° lower than in the southern division. These low temperatures are due to the altitude, prevailing northwest winds, and distance from large bodies of water.

Within the three larger divisions may be found limited areas with marked departures in normal temperatures, as compared with neighboring localities, attributable no doubt to local causes.

The seasonal normal temperatures for the various divisions are: Spring, northern, 60° ; middle, 64° ; southern, 66° ; State, 63° . Summer, northern, 77° ; middle, 80° ; southern, 81° ; State, 79° . Autumn, northern, 61° ; middle, 64° ; southern, 67° ; State, 64° . Winter, northern, 42° ; middle, 47° ; southern, 50° ; State, 46° .

The absolute maximum temperature for the State, 108° , occurred in July, 1893 and 1902, and August, 1896, while the lowest, 12° below zero, occurred in February, 1899.

The warmest month is July, with an average of 80° , and the coldest January, with a mean of 45° .

Clayton and Diamond, in the mountainous region of north Georgia, whose annual mean temperature is 57° , are the coldest points in the State, while the highest annual mean, 67° , is found in the records of Thomasville and Waycross, in the south.

The coldest winter was that of 1901–2, with an average of 43° . This was followed by the warmest summer (1902), average 81° . The average summer temperature exceeds the annual average by 16° , while that for winter falls 17° below the annual. The spring average corresponds exactly with the annual and the fall average exceeds it by only 1° .

From the low mean temperatures found in some of the northern counties it might be inferred that the cold of winter must be very severe to counterbalance the heat of the summer season. The contrary is the case. The summers are warm but not oppressive, the temperatures rarely rising to 100°. In the southern portion of the State higher temperatures prevail, but the elevated lands even in that section contribute largely to the health and comfort of the summers and the winters are short and comparatively mild. Cold weather seldom occurs before Christmas, January and February being the most disagreeable months of the year.

The average date of the first killing frost in autumn in the north section varies from October 21 in the extreme northeast to about November 7 in the south; in the central section the average date is November 10; on the southeastern coast the average date is from November 27 to 30; while in the interior of the southern section the date varies from November 11 in the north to the 21st near the Florida line. The average date of the last killing frost in spring for the entire State is about February 26 on the southeastern coast and April 15 in the extreme northeast; in the interior of the southern section the date varies from March 2 to 11; in the central section from March 18 to 23; and in the northern section from March 24 to April 15. The last-named date applies to the extreme north. Over the greater portion of the northern section a destructive frost is not likely to occur after April 3 to 6.

Precipitation.—The annual normal precipitation—rain, hail, sleet, and snow—is 51.3 inches; for the northern division, 54.1 inches; middle, 49 inches; and southern, 50.7 inches. The greatest mean annual amounts occur in the northeast, in the Piedmont region, where the greatest elevations in the State are found. These mountain ranges prove a barrier to the moist-laden winds from the South Atlantic, forcing them to greater elevations, lowering their temperature, decreasing their capacity for holding moisture, and the result is rapid condensation and greater rainfalls than occur in the lower counties of the south. Clayton, in Rabun County, in the extreme northeast, at an elevation of about 2,000 feet above sea level, has the largest normal annual precipitation, 68.5 inches, or 17.2 inches greater than the normal for the State. The rainfall decreases to the south and southwest over the middle division of the State, but again increases in the counties on the Atlantic coast and the extreme southern border of the State. The normal precipitation is divided throughout the seasons as follows: Spring, 12.2 inches; summer, 16.3 inches; autumn, 9.3 inches; and winter, 13.5 inches. During the growing season of crops there is a slight excess in all sections of the State, the normal total for the period March to August, inclusive, being 28.5 inches, well distributed throughout all sections, while the small normal throughout the months of September, October, and November, 9.3 inches, affords excellent opportunity for the gathering of cotton. The months with the greatest normal precipitation are: March, in the northern section, with an average of 6 inches; July, in the middle, with an average of 5.7 inches; and August, in the southern, with an average of 6.6 inches. Here again topography plays its part. During the winter the moist winds from the south and southeast move inland until the mountains are reached, when by increased elevation and lowered temperature they are deprived of much of their moisture, and it is at this season that the northern and most elevated section receives its greatest precipitation. In the southern part of the State the wettest season is in the late summer, during the period of greatest frequency of West Indian and Gulf storms.

October is the driest month in the northern and middle sections, the average being 2.9 inches and 2.6 inches, respectively. In the southern section the smallest normal rainfall occurs in November—2.4 inches. Northern and western Georgia belong to the Tennessee type of rainfall distribution, having their heaviest rains in the early spring, when the moist winds from the Gulf meet the cold north winds from the interior, and least in mid autumn, when the cool, dry winds blow from the north and northeast. The eastern and southern portions of the State have a more uniform distribution of rain throughout the year and come within the Atlantic type of rainfall distribution.

Noticeable features of the distribution of rainfall throughout the State are the decrease in April and May, followed by a steady increase during June, July, and August, when the maximum for the entire State, 5.8 inches, is reached. This period is followed by a second decrease, reaching the minimum for the State, 2.6 inches, in October.

The greatest monthly rainfall of which there is a known record, 28.6 inches, occurred at Fleming, Liberty County, in August, 1898. Of this amount 8.58 inches fell in twenty-four consecutive hours. This was an unusually wet month, the average for the entire State being 10.1 inches, over 4 inches in excess of the August normal. While the rainfall exceeded the normal in all sections of the State, it was greatest in the middle and southern divisions, where the averages were 12.39 inches and 11.78 inches, respectively. The greatest individual amounts for the month were: Fleming, 28.6 inches; Brag, 23.02 inches; Savannah, 22.79 inches; Jesup, 18.13 inches; and Harrison, 16.41 inches. Abnormally heavy monthly rainfalls—15 inches or more—have occurred at various points in the State in other years, especially in August, 1901.

While the amount of water that falls during twenty-four hours at an individual station is not a true index to the entire rainfall accompanying severe storms, it gives a good idea of the greatest amounts within the territory traversed by the storm. The conditions under which excessively heavy rainfalls occur are such that they are usually of short duration and storms in which more than 50 per cent of the rain does not fall in twenty-four hours are extremely rare. There is scarcely any section of the State where rains to the amount of 2 inches does not fall in a single day, while 1 inch in twenty-four hours is of rather common occurrence.

The following is a record of the greatest 24-hour rainfalls in the State for the single year 1903:

February 7, Experiment, 5.37 inches; February 8, Monticello, 5.05; February 7-8, West Point, 6.12; February 7-8, Woodbury, 5; May 8, Waverly, 5.10; May 9, St. Marys, 7.24; May 13, Columbus, 5.96; May 13, Fort Gaines, 6.39; May 13, Lumpkin, 7.30; September 14, Bainbridge, 6.40; September 14, Blakely, 6.20; September 14, Dawson, 5.01; September 14, Muzzy, 7.36; September 14, Poulan, 5.31; September 13-14, Thomasville, 8.40; September 15, Butler, 6.46; September 15, Griffin, 5.42; September 15, Quitman, 5.32.

Snowfall.—The average annual snowfall for the State, based on data of stations having records for ten years or more, varies from about 7 inches in the mountainous region of the extreme northeast to practically nothing in the extreme south, where snow is of very rare occurrence. The annual average fall throughout the middle section is about 2 inches. The amount of precipitation from melted snow forms an almost infinitesimal proportion of the total precipitation for the State, though there are cases on record of heavy falls in various years at individual stations, especially in the Piedmont region, where snow is not at all uncommon. Snow occurs most frequently in January and February. In the counties south of the thirty-second parallel a snowstorm rarely occurs, a notable exception being the storm of February 13, 1899, commonly known as the "great blizzard" when snow fell throughout the entire State, reaching a depth in the extreme southern portion of 2 or more inches. In the far north there is occasionally a snow that covers the ground for from four to seven days, but as a rule rapid melting takes place, while in the middle section snow is not at all common and rarely remains on the ground more than a day or two. During the eleven years, 1893 to 1903, the months of greatest snowfall have been: January, 1893; February, 1895, 1899, and 1901. The greatest monthly snowfall of which there is authentic record, 26.5 inches, occurred at Diamond, Gilmer County (extreme north), in February, 1895. The following list gives the maximum monthly falls for various other stations:

Dahlonega, January, 1893, 18 inches; Adairsville, January, 1893, 11; Atlanta, January, 1893, 9.6; Point Peter, January, 1893, 9; Clayton, February, 1895, 18; Ramsey, February, 1895, 14.5; Elberton, February, 1895, 11.5; Poulton, February, 1895, 5; Morgan, February, 1895, 4.5; Fleming, February, 1895, 3; Valona, February, 1899, 4; Fort Gaines and Lumpkin, February, 1899, 3.5; Waycross, February, 1899, 3; Savannah, February, 1899, 2; Dudley, Harrison and Hawkinsville, February, 1901, 7; Covington, Marshallville, Newnan, and Talbotton, February, 1901, 6.

The greatest twenty-four-hour fall within recent years was 12 inches, on January 18-19, 1893, at Dahlonega, but a reliable record for Rome, Floyd County, extending back to 1856, shows a fall of 18.5 inches on December 5, 1886, the total for the month being 24 inches.

Thunderstorms.—While no month of the year is exempt from thunderstorms they are most numerous during July and August, and are more frequent in May and June than in September and October. In winter these storms usually occur just about the time of the passage of the center of an area of low pressure whose track has extended at least as far south as Tennessee. The general storm draws in a superabundance of moist, warm air from the Gulf and South Atlantic. These warm currents meet the colder upper currents from the advancing high and cause our winter thunderstorms. They are invariably followed by clearing and colder weather within a very short time. Hence arises the common expression "A thunderstorm in winter means colder weather."

Severe storms.—While Georgia lies within what is technically known as the "tornado belt" and is more or less liable to be visited by these destructive storms, its peculiar topography is such that some portions of the State have never been visited by a tornado and possibly never will be. One section which seems peculiarly fortunate is that along the Chattahoochee Ridge extending nearly entirely across the State. Middle and south Georgia are the sections most frequented by storms of a destructive nature.

Weather.—The average number of clear days per year is 149; partly cloudy, 121; cloudy, 95; with 0.01 inch or more precipitation, 100. The largest percentage of rainy days occurs during July and August, each having an average of twelve days. March ranks next with an average of ten days. During the three summer months rain occurs about one day in three, while during the three autumn months the ratio is 1 to 5. January, February, and June each have an average of nine rainy days; October, the driest month, averages only five, or one in every six. The year with the greatest number of rainy days was 1900, when rain fell on one hundred and fifteen days. The year 1897 had the least number, 84.

Wind.—The prevailing winds for the State are: Northern section, northwest; middle, west; southern, south. In the northern section northwesterly winds prevail during all seasons, while in the middle and southern divisions it is very different. In the middle division westerly winds predominate during winter and spring, southeasterly in summer and northeasterly in autumn. In the southern division the prevalent winds in winter are from the northwest, in spring south, summer southwest, and autumn northeast. The velocity of the wind is greatest in the elevated regions of north Georgia and least in the lowlands of middle Georgia. At Atlanta the average hourly velocity is 9.5 miles; at Augusta, 5.8 miles, and at Savannah, 7.3 miles. The maximum hourly velocity at Atlanta during twenty-five years was 60 miles per hour, from the northwest, on February 16, 1903; at Augusta, 52 miles, northeast, August 28, 1893; at Savannah, 76 miles, northwest, August 31, 1898.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Appling (see Jesup)		Southeastern		Jackson (see Elberton)		Northern	
Baker (see Morgan)		Southwestern		Jasper (see Covington)		Central	
Baldwin (see Dudley)		Central		Jefferson (see Harrison)		Eastern	
Banks (see Dahlongega)		Northeastern		Johnson (see Harrison)		Central	
Bartow	Adairsville	Northwestern	328	Jones (see Dudley)	Dudley	do	
Bernier (see Poulan)		Southern		Laurens		do	336
Bibb (see Dudley)		Central		Lee (see Poulan)		Southwestern	
Brooks (see Thomasville)		Southern		Liberty (see Savannah)		Southeastern	
Bryan (see Savannah)		Southeastern				coast	
Bulloch (see Savannah)		coast		Lincoln (see Elberton)		Northeastern	
Burke (see Augusta)		Eastern		Lowndes (see Thomasville)		Southern	
Butts (see Covington)		do		Lumpkin	Dahlongega	Northern	329
Calhoun	Morgan	Central		McDuffie (see Augusta)		Eastern	
Camden (see Jesup)		Southwestern	339	McIntosh (see Jesup)		Southeastern	
		coast				coast	
Campbell (see Atlanta)		Western		Macon (see Dudley)		Western	
Carroll (see Anniston, Ala.)		do		Madison (see Elberton)		Northeastern	
Catoosa (see Chattahoochee, Tenn.)		Northwestern		Marion (see Talbotton)		Western	
Charlton (see Waycross)				Meriwether (see Talbotton)		do	
Chatham	Savannah	Southeastern		Miller (see Morgan)		Southwestern	
		Southeastern	337	Milton (see Atlanta)		Northern	
		coast		Mitchell (see Thomasville)		Southwestern	
Chattahoochee (see Lumpkin)		Western		Monroe (see Dudley)		Central	
Chattooga (see Adairsville)				Montgomery (see Dudley)		do	
Cherokee (see Adairsville)		Northwestern		Morgan (see Covington)		do	
Clarke (see Elberton)		Northern		Murray (see Adairsville)		Northwestern	
Clay (see Morgan)		do		Muscogee (see Talbotton)		Western	
Clayton (see Atlanta)		Southwestern		Newton	Covington	Central	332
Clinch (see Waycross)		Western		Oconee (see Covington)		Northern	
Cobb (see Atlanta)		Southern		Oglethorpe (see Elberton)		Northeastern	
Coffee (see Waycross)		Northern		Paulding (see Adairsville)		Northwestern	
Colquitt (see Thomasville)		Southern		Pickens (see Adairsville)		Northern	
Columbia (see Augusta)		do		Pierce (see Jesup)		Southeastern	
Coweta (see Atlanta)		Eastern		Pike (see Talbotton)		Western	
Crawford (see Dudley)		Western		Polk (see Adairsville)		Northwestern	
Cude (see Chattahoochee, Tenn.)		Central		Pulaski (see Dudley)		Central	
		Northwestern		Putnam (see Covington)		do	
Dawson (see Dahlongega)				Quitman (see Eufaula, Ala.)		Southwestern	
Decatur (see Thomasville)		Northern		Rabun	Clayton	Northeastern	327
DeKalb (see Atlanta)		Southwestern		Randolph (see Lumpkin)		Southwestern	
Dodge (see Dudley)		Northern		Richmond	Augusta	Eastern	333
Dooly (see Poulan)		Central		Rockdale (see Covington)		Central	
Dougherty (see Poulan)		Southern		Schley (see Lumpkin)		Western	
Douglas (see Atlanta)		Southwestern		Screven (see Augusta)		Eastern	
Early (see Morgan)		Western		Spalding (see Covington)		Western	
Echols (see Waycross)		Southwestern		Stewart	Lumpkin	Southeastern	338
Effingham (see Savannah)		Southern		Sumter (see Lumpkin)		do	
Elbert	Elberton	Eastern		Talbot	Talbotton	Western	335
		Northeastern	330	Taliaferro (see Augusta)		Central	
Emanuel (see Harrison)		Eastern		Tattnall (see Jesup)		Southeastern	
Eannin (see Dahlongega)		Northern		Taylor (see Talbotton)		Western	
Fayette (see Covington)		Western		Telfair (see Poulan)		Southern	
Floyd (see Adairsville)		Northwestern		Terrell (see Morgan)		Southwestern	
Forsyth (see Atlanta)		Northern		Thomas	Thomasville	do	343
Franklin (see Elberton)		Northeastern		Towns (see Clayton)		Northern	
Fulton	Atlanta	Northern	331	Troup (see Opelika, Ala.)		Western	
		do		Twiggs (see Dudley)		Central	
Gilmer (see Dahlongega)		Eastern		Union (see Dahlongega)		Northern	
Glascock (see Harrison)		Southeastern		Upson (see Talbotton)		Western	
Glynn (see Jesup)		coast		Walker (see Valley Head, Ala.)		Northwestern	
Gordon (see Adairsville)		Northwestern		Walton (see Covington)		Northern	
Greene (see Covington)		Central		Ware	Waycross	Southeastern	342
Gwinnett (see Atlanta)		Northern		Warren (see Augusta)		Eastern	
Habersham (see Clayton)		Northeastern		Washington	Harrison	Central	334
Hall (see Dahlongega)		Northern		Wayne	Jesup	Southwestern	341
Hancock (see Harrison)		Central		Webster (see Lumpkin)		Southeastern	
Haralson (see Anniston, Ala.)		Western		White (see Dahlongega)		Northern	
Harris (see Talbotton)		do		Whitfield (see Adairsville)		Northwestern	
Hart (see Elberton)		Northeastern		Wilcox (see Poulan)		Southern	
Heard (see Opelika, Ala.)		Western		Wilkes (see Elberton)		Northeastern	
Henry (see Covington)		do		Wilkinson (see Dudley)		Central	
Houston (see Dudley)		Central		Worth	Poulan	Southern	340
Irwin (see Poulan)		Southern					

STATE SUMMARY—GEORGIA.

Station.	No.	Temperature.									
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number days with—		
							Maximum above 90°.		Minimum below 32°.		
		° F.	° F.	° F.	° F.		° F.				
Clayton.....	1	57	69	46	96	July, 1898.....	- 5	February, 1895.....	20	81	
Adairsville.....	2	60	70	50	102	July, 1897.....	- 8	February, 1899.....	36	54	
Dahlonega.....	3	58	70	47	98	June, 1894.....	-11	do.....	18	62	
Elberton.....	4	62	73	52	104	July, 1902.....	- 2	do.....	18	41	
Atlanta.....	5	61	70	52	100	July, 1887.....	- 8	do.....	20	26	
Covington.....	6	62	73	51	105	August, 1899.....	-10	do.....	54	44	
Augusta.....	7	64	74	54	105	August, 1878.....	3	do.....	55	26	
Harrison.....	8	64	74	53	103	July, 1902.....	- 2	do.....	53	24	
Talbotton.....	9	63	74	52	105	do.....	- 6	do.....	43	36	
Dudley.....	10	66	77	54	105	do.....	- 3	do.....	38	29	
Savannah.....	11	66	75	58	105	July, 1879.....	8	do.....	41	9	
Lumpkin.....	12	66	76	56	106	July, 1902.....	- 5	do.....	70	23	
Morgan.....	13	65	74	54	104	July, 1901.....	- 1	do.....	70	37	
Poulan.....	14	65	78	53	105	August, 1897.....	- 1	do.....	71	26	
Jesup.....	15	66	78	55	104	July, 1899.....	1	do.....	71	26	
Waycross.....	16	67	77	56	107	August, 1900.....	4	do.....	76	25	
Thomasville.....	17	67			106	July, 1901.....	2	do.....	83	19	

Station.	No.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						Inches.	Inches.	Inches.	Inches.	Inches.
Clayton.....	1	Oct. 21	Apr. 15	Oct. 1	Apr. 24	68.5	17.3	19.5	12.8	18.9
Adairsville.....	2	Oct. 31	Apr. 3	Oct. 15	do.....	47.6	12.7	11.9	8.2	14.7
Dahlonega.....	3	Nov. 4	Mar. 31	do.....	do.....	59.9	14.9	16.9	10.5	17.6
Elberton.....	4	Nov. 8	Mar. 29	Oct. 25	Apr. 7	50.0	11.6	15.2	8.8	14.4
Atlanta.....	5	Nov. 7	Mar. 24	Sept. 27	Apr. 10	49.9	12.9	13.3	8.8	14.9
Covington.....	6	Nov. 9	Mar. 31	Oct. 25	Apr. 12	50.7	12.1	15.2	8.8	14.6
Augusta.....	7	do.....	Mar. 18	Oct. 8	Apr. 16	48.5	11.8	15.4	9.2	12.1
Harrison.....	8	Nov. 12	Mar. 20	Oct. 25	Apr. 1	51.4	11.7	18.3	8.8	12.6
Talbotton.....	9	do.....	Mar. 23	do.....	Apr. 10	51.7	12.5	15.1	9.6	14.5
Dudley.....	10	Nov. 11	Mar. 20	Oct. 23	Apr. 8	50.1	12.4	13.8	10.8	13.1
Savannah.....	11	Nov. 27	Feb. 26	Nov. 1	Apr. 5	51.0	9.8	19.8	11.8	9.6
Lumpkin.....	12	Nov. 11	Mar. 11	Oct. 25	Mar. 31	50.5	13.1	13.8	8.5	15.1
Morgan.....	13	Nov. 13	Mar. 10	Oct. 21	Apr. 8	50.6	11.8	15.5	8.6	14.7
Poulan.....	14	do.....	Mar. 11	Oct. 25	Mar. 28	50.9	11.0	18.5	8.7	12.7
Jesup.....	15	Nov. 20	Mar. 17	Nov. 4	Apr. 11	53.0	10.6	20.0	11.4	11.0
Waycross.....	16	Nov. 18	Mar. 13	do.....	Apr. 8	50.8	11.1	19.3	11.2	9.2
Thomasville.....	17	Nov. 21	Mar. 2	Nov. 8	Mar. 19	53.8	12.0	18.5	10.9	12.4

GEORGIA.

Northern Division: RABUN COUNTY. Station: CLAYTON.

A. J. DUNCAN, Observer.

[Established in May, 1892, by U. S. Weather Bureau. Latitude, 34° 53' N. Longitude, 83° 23' W. Elevation, 2,000 feet.]

This station is located in a valley 4 miles southeast of the village of Clayton. The surrounding country is very rugged and mountainous. One mile north of the station are mountains with an elevation of about 2,500 feet; on the south, about 1 mile distant, is Duncan Mountain—elevation, 1,800 feet; about one-half mile to the west is Stroud Mountain—elevation, 2,200 feet. To the east of the station is an unobstructed valley.

The maximum and minimum thermometers are exposed in a shelter of standard pattern, 4 feet northwest of a two-story residence and 5 feet above ground.

The rain gage is 30 feet from any obstacles, in an open space, the top of the gage being about 3½ feet above ground.

The mean temperatures for this station have been computed from the means of the maximum and minimum thermometer readings. The published record covers the period from October 9, 1893, to December 31, 1903, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	40	50	69	30	2	44	35	5.6	8	8.2	4.4	1.0	5.5
January.....	40	50	70	30	- 1	44	36	5.9	9	8.7	6.0	1.5	6.0
February.....	39	50	71	28	- 5	45	32	7.4	9	5.9	1.5	4.5	8.0
Winter mean.....	40	50	.....	29	.....	.....	.....	18.9	26	22.8	11.9	7.0	.....
March.....	50	61	83	38	8	54	46	7.8	10	2.5	8.5	0.1	1.0
April.....	55	68	91	43	23	61	52	6.3	8	2.7	5.8	T.	T.
May.....	66	80	94	53	31	71	62	3.2	8	2.5	2.0	T.	T.
Spring mean.....	57	70	.....	45	.....	.....	.....	17.3	26	7.7	16.3	0.1	.....
June.....	72	85	96	60	42	75	67	5.3	10	2.3	2.6	0.0	0.0
July.....	75	86	96	63	50	76	72	7.0	12	7.3	14.4	0.0	0.0
August.....	74	86	95	63	47	78	72	7.2	12	3.0	11.4	0.0	0.0
Summer mean.....	74	86	.....	62	.....	.....	.....	19.5	34	12.6	28.4	0.0	.....
September.....	68	80	83	57	36	71	65	4.9	6	2.0	11.3	0.0	0.0
October.....	57	69	89	45	24	63	51	4.0	6	3.0	14.5	0.0	0.0
November.....	48	60	76	36	14	53	43	3.9	6	0.7	5.4	0.2	2.0
Fall mean.....	58	70	.....	46	.....	.....	.....	12.8	18	5.7	31.2	0.2	.....
Annual mean.....	57	69	96	46	- 5	.....	.....	68.5	104	48.8	87.8	7.3	8.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 28, 29.....	None.	1899	Feb. 13, 14; Mar. 7; Dec. 30.	June 3.
1895	Jan. 12, 13; Feb. 7-10, 13, 14.	June 2, 4; July 18.	1900	Jan. 2, 30; Feb. 1.....	None.
1896	Feb. 21, 22; Dec. 25, 26.	July 29-31; Aug. 12.	1901	Dec. 17, 18, 21, 22.....	Do.
1897	Jan. 28-30.....	June 26; July 1, 3.	1902	Jan. 13.....	June 12; July 5; Aug. 20.
1898	Feb. 4; Dec. 14, 15....	June 9, 10; July 2, 3.	1903	None.....	None.

GEORGIA.

Northern Division: BARTOW COUNTY. Station: ADAIRSVILLE.

J. P. BOWDOIN, Observer.

[Established by U. S. Weather Bureau in February, 1892. Latitude, 35° 22' N. Longitude, 84° 57' W. Elevation, 772 feet.]

Adairsville is midway between Atlanta, Ga., and Chattanooga, Tenn., in the northwestern part of the State. The station is located about 200 yards from the geographical center of the town, on the highest elevation within the corporate limits. The Oothcalooga Valley, in which the town is located, is in the shape of the letter "V," with its apex toward the south. The station is about 5 miles north of the source of the Oothcalooga River and about 10 miles from its mouth where it joins the Oostanulla. To the west, about 1½ miles distant, are elevated ridges of 1,000 feet; on the east about 3 miles are similarly elevated regions. The surrounding country is rugged and hilly.

The maximum and minimum thermometers are exposed in a standard shelter, attached to the north side of the residence of the observer, about 4 feet above ground.

The rain gage is situated in an open space about 50 feet from the nearest obstacle and about 100 feet west of the shelter. The top of the gage is 3 feet above the ground.

The mean temperatures for this station have been computed from the means of the maximum and minimum thermometer readings.

The published record covers the period from January, 1893, to December, 1903, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY, 1893, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	41	51	69	32	5	44	37	4.4	9	1.2	4.4	0.3	3.3
January.....	40	49	73	31	— 1	44	34	4.5	11	3.6	3.5	1.3	8.5
February.....	41	50	77	32	— 8	46	32	5.9	10	3.7	6.9	1.6	6.3
Winter mean.....	41	50	.....	32	.....	.....	.....	14.8	30	8.5	14.8	3.2	.....
March.....	53	62	84	43	.....	57	48	6.0	12	2.7	7.1	T.	0.2
April.....	59	70	92	48	30	65	54	3.6	9	1.6	6.6	0.0	0.0
May.....	70	82	94	58	38	74	66	3.1	8	3.2	4.3	0.0	0.0
Spring mean.....	61	71	.....	50	.....	.....	.....	12.7	29	7.5	18.8	T.	.....
June.....	76	87	99	65	41	79	72	3.8	9	1.3	10.8	0.0	0.0
July.....	79	90	102	69	56	82	77	4.1	11	6.2	4.6	0.0	0.0
August.....	78	88	99	69	55	80	76	4.0	10	2.4	1.1	0.0	0.0
Summer mean.....	78	88	.....	68	.....	.....	.....	11.9	30	9.9	16.5	0.0	.....
September.....	72	83	97	62	40	75	69	3.4	6	4.7	4.7	0.0	0.0
October.....	61	73	88	50	26	66	56	2.3	5	1.0	5.2	T.	T.
November.....	50	60	77	40	19	56	46	2.5	7	4.3	3.4	T.	T.
Fall mean.....	61	72	.....	51	.....	.....	.....	8.2	18	10.0	13.3	T.	.....
Annual mean.....	60	70	102	50	— 8	.....	.....	47.6	107	35.9	62.6	3.2	8.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 29, 30.....	June 14, 29, 30; July 1; Aug. 13, 25-28, 31.	1898	Dec. 14.....	June 10-12; July 2, 3.
1895	Jan. 1, 2, 13; Feb. 8-10.	June 3, 4.	1899	Feb. 1, 10-15; Mar. 7, 8.	June 9; July 16-18.
1896	Feb. 21.....	June 27; July 1, 27-31; Aug. 1, 2, 6, 8-15, 17; Sept. 19, 20.	1900	Jan. 29; Feb. 1, 18.....	None.
1897	Jan. 28-30.....	June 12-17, 21, 25, 26, 28-30; July 1-5, 7; Aug. 2; Sept. 12, 16, 17.	1901	Dec. 16, 18, 21.....	June 23-26; July 27, 28, 30.
			1902	None.....	July 1-10, 18-20; Aug. 4, 9-11, 13-15, 21.
			1903	.....do.....	Aug. 25.

GEORGIA.

Northern Division: LUMPKIN COUNTY. Station: DAHLONEGA.

Prof. B. P. GAILLARD, Observer.

[Established by Weather Bureau in February, 1892. Latitude, 34° 31' N. Longitude, 84° W. Elevation, 1,519 feet.]

This station is in the western part of Dahlonega. It is on a ridge overlooking the town, the greater part of which lies south and east of the station. Toward the north and west it commands a view of a broad stretch of country, extending to the Blue Ridge Mountains 10 miles distant toward the north and about 25 miles toward the west. The intervening country is nearly all in plain view, and is covered largely with forests. South and east of the station and about 1 mile distant is a ridge extending northwest and southeast. This is from 100 to 150 feet higher than the station, and interrupts the view to the south.

The maximum and minimum thermometers are exposed in a regulation shelter. The thermometers are 4½ feet above the ground.

The rain gage is 25 feet southeast of the house, its top being 34 inches above the ground. The nearest obstructions are from 25 to 40 feet distant.

The mean temperatures for this station have been obtained from the means of the maximum and the minimum thermometer readings. The published records cover the period from January 1, 1893, to December 31, 1903, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	53	74	31	1	46	37	5.3	9	8.0	10.9	0.7	3.5	
January.....	41	51	71	31	0	46	35	5.3	10	3.1	6.3	3.0	12.0	
February.....	41	52	73	30	-11	47	34	7.0	10	8.1	3.6	3.3	6.0	
Winter mean.....	41	52		31				17.6	29	19.2	20.8	7.0		
March.....	50	62	83	39	0	56	47	6.4	12	5.9	6.8	0.2	2.5	
April.....	58	71	91	45	23	63	53	4.3	9	1.7	4.6	T.	T.	
May.....	67	80	92	54	34	71	63	4.2	9	1.6	10.4	0.0	0.0	
Spring mean.....	58	71		46				14.9	30	9.2	21.8	0.2		
June.....	73	84	98	62	39	76	67	5.5	11	1.3	8.1	0.0	0.0	
July.....	75	86	97	64	50	80	73	5.9	12	2.2	2.0	0.0	0.0	
August.....	75	86	96	64	52	77	73	5.5	11	3.3	12.7	0.0	0.0	
Summer mean.....	74	85		63				16.9	34	6.8	22.8	0.0		
September.....	70	81	95	59	34	73	67	4.5	7	6.8	5.8	0.0	0.0	
October.....	60	72	89	48	28	63	57	3.0	6	2.0	0.8	T.	T.	
November.....	50	61	79	38	13	55	46	3.0	8	4.0	1.0	0.2	2.0	
Fall mean.....	60	71		48				10.5	21	12.8	7.6	0.2		
Annual mean.....	58	70	98	47	-11			59.9	114	48.0	73.0	7.4	12.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 28, 29.....	June 29, 30.	1900	Jan. 2, 29, 30; Feb. 1,	July 3, 16, 17; Aug. 2, 4, 7, 8, 10, 11.
1895	Jan. 13; Feb. 7-9, 13, 14.	None.		17, 18, 25.	
1896	Jan. 4; Feb. 21, 22....	July 29; Sept. 18.	1901	Feb. 20, 21, 24, 25; Mar.	June 23-25; July 3, 4, 11, 15, 16.
1897	Jan. 28-30.....	July 9; Sept. 15, 16.		6, 7; Dec. 17, 18, 21.	
1898	Feb. 3; Dec. 13.....	July 1, 2.	1902	None.....	June 28, 30; July 2, 4-7, 9, 10, 20; Aug. 14.
1899	Feb. 8-10, 12-14; Mar.	None.	1903	Feb. 18.....	None.
	7; Dec. 30-31.				

GEORGIA.

Northern Division: ELBERT COUNTY. Station: ELBERTON.

H. A. ROEBUCK, Observer.

[Established in February, 1891, by Signal Service. Latitude, 34° 4' N. Longitude, 82° 59' W. Elevation, 710 feet.]

This station is located in the northern part of the city of Elberton, and its surroundings are very similar to an open country. The station is on a ridge between the Savannah and Broad rivers, each of which is 10 miles distant. The surface of the country is slightly undulating.

The maximum and minimum thermometers are exposed in a standard shelter, which is located in an open garden. The thermometers are 5½ feet above the ground.

The rain gage is 12 feet northeast of the shelter and 30 feet north of the observer's residence. The top of the gage is 3½ feet above the ground.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometer readings. The published record covers the period from January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth. in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	45	55	78	35	5	50	40	3.8	9	2.8	7.2	1.0	7.0
January.....	43	53	73	33	5	47	36	4.8	9	5.4	4.2	0.3	1.5
February.....	44	54	76	33	— 2	49	36	5.8	9	4.9	3.8	3.1	8.5
Winter mean.....	44	54	.....	34	.....	.....	.....	14.4	27	13.1	15.2	4.4	.....
March.....	54	66	88	43	14	60	50	5.5	10	3.4	5.0	0.2	2.0
April.....	62	74	94	50	30	67	57	3.4	11	2.2	5.8	T.	T.
May.....	72	83	98	61	39	76	69	2.7	6	2.1	6.0	0.0	0.0
Spring mean.....	63	74	.....	51	.....	.....	.....	11.6	24	7.7	16.8	0.2	.....
June.....	78	88	102	68	47	80	73	4.6	9	2.8	4.2	0.0	0.0
July.....	80	90	104	70	58	82	78	5.2	8	7.5	6.1	0.0	0.0
August.....	79	88	100	69	61	82	77	5.4	9	1.4	15.4	0.0	0.0
Summer mean.....	79	89	.....	69	.....	.....	.....	15.2	26	11.7	26.7	0.0	.....
September.....	74	84	102	64	45	78	72	3.2	5	2.1	7.5	0.0	0.0
October.....	64	74	89	54	30	67	59	2.9	5	2.3	0.8	0.0	0.0
November.....	53	64	83	42	20	58	50	2.7	5	5.6	0.7	0.3	3.0
Fall mean.....	64	74	.....	53	.....	.....	.....	8.8	15	10.0	9.0	0.3	.....
Annual mean.....	62	73	104	52	— 2	.....	.....	50.0	92	42.5	67.7	4.9	8.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 28, 29.....	None.	1899	Feb. 13-15.....	None.
1895	Jan. 13, 14; Feb. 7, 8, 12, 13.	Do.	1900	Jan. 2; Feb. 18.....	Do.
1896	None.....	Sept. 18.	1901	None.....	Do.
1897	Jan. 28, 29.....	July 3.	1902	.....do.....	June 12; July 4-6; Aug. 19, 21.
1898	None.....	July 1.	1903	.....do.....	July 27.

GEORGIA.

Northern Division: FULTON COUNTY. Station: ATLANTA.

J. B. MARBURY, Section Director.

[Established October 1, 1878, by Signal Service. Latitude, 33° 45' N. Longitude, 84° 23' W. Elevation, 1,069 feet.]

Since the opening of the station the following buildings have been occupied: October 1, 1878, Kimball House, elevation 1,114.2 feet; January 6, 1883, United States custom-house, elevation 1,112.5 feet; March 1, 1888, United States custom-house, elevation 1,112 feet; March 15, 1889, Gould Building, elevation 1,121.9 feet; May 31, 1891, United States custom-house, elevation 1,114.1 feet; July 1, 1899, Prudential Building, elevation 1,173.9 feet; August 15, 1901, Empire Building, elevation 1,217.8 feet.

The station is equipped with a complete outfit of meteorological instruments. The thermometers, anemoscope, anemometer, rain gage, and sunshine recorder are exposed on the roof of the Empire Building. The anemometer is 215.5 feet above ground; wind vane 216.7 feet above ground; rain gage, 182.5 feet; thermometers, 190.2 feet. The latter are exposed in a regulation Weather Bureau shelter 10.4 feet above the roof. The sunshine recorder is attached to northeast corner of roof of instrument shelter.

Tabulated data are from the following periods of observation: Humidity fifteen years, 1889 to 1903; sunshine nineteen years, 1885 to 1903. Remainder of data is from the whole period of observation, twenty-five years, October 1, 1878, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine		Direction of prevailing wind.	
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr. s.	P. ct.	Gr. s.			
January.....	44	53	72	36	1	57	40	4.4	10	1.4	5.4	1.1	6.3	81	2.39	69	2.53	158	52	NW.
February.....	42	50	75	35	-2	54	36	5.3	13	3.1	3.9	0.5	7.0	82	2.17	70	2.39	151	48	NW.
March.....	46	54	78	37	-8	55	34	5.2	11	3.0	5.9	1.4	6.5	80	2.20	66	2.42	167	54	NW.
Winter mean.....	44	52	75	36	-2	54	36	14.9	34	7.5	15.2	3.0	6.3	81	2.25	68	2.45	159	51	NW.
April.....	52	61	83	43	8	58	47	5.9	12	3.3	8.2	T.	0.5	80	2.83	63	3.05	197	53	NW.
May.....	61	70	89	52	25	66	55	3.7	10	0.6	1.3	T.	0.1	74	3.62	58	3.54	255	65	NW.
June.....	70	79	94	60	38	75	66	3.3	9	2.0	6.9	0.0	0.0	73	4.86	56	4.42	312	72	NW.
Spring mean.....	61	70	85	52	25	66	55	12.9	31	5.9	16.4	T.	0.2	76	3.77	59	3.67	255	63	NW.
Summer.....	76	85	98	67	39	80	71	4.0	11	2.7	4.7	0.0	0.0	78	5.84	63	6.99	103	70	NW.
July.....	78	87	100	70	58	80	75	4.8	12	7.6	1.8	0.0	0.0	82	7.62	69	7.54	274	62	NW.
August.....	77	85	96	69	55	81	74	4.5	13	2.0	3.9	0.0	0.0	85	7.33	71	7.30	253	61	NW.
Summer mean.....	77	86	98	69	55	80	74	13.3	36	12.3	10.4	0.0	0.0	82	6.93	68	7.28	277	64	NW.
September.....	72	81	97	64	43	76	69	3.0	8	1.4	14.3	0.0	0.0	81	5.88	67	5.88	260	67	E.
October.....	62	71	91	54	30	67	57	2.3	7	1.3	4.0	0.0	0.0	78	3.91	61	4.00	235	67	NW.
November.....	52	60	82	43	16	58	48	3.5	9	5.9	4.7	0.0	0.0	80	2.83	66	3.09	183	59	NW.
Fall mean.....	62	71	85	54	25	67	57	8.8	24	8.6	23.0	0.0	0.0	80	4.21	65	4.32	223	64	NW.
Annual mean.....	61	70	100	52	-8	66	55	49.9	125	34.3	65.0	3.0	7.0	80	4.20	65	4.43	228	61	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 28, 29.	June 29, 30.	1899	Feb. 12-14; Mar. 7....	June 21, 22; July 15-17; Aug. 21, 22; Sept. 7.
1895	Jan. 13; Feb. 7-9, 13....	June 1, 2.	1900	Feb. 17, 18.....	Aug. 9-11, 22.
1896	Feb. 21.....	July 29-31; Aug. 12; Sept. 18.	1901	Dec. 18, 21.....	June 25; July 11, 12, 26.
1897	Jan. 27-29.....	June 25, 27, 30; July 1, 2, 4; Aug. 28; Sept. 15, 16.	1902	None.....	June 12; July 2, 4-6; Aug. 4, 14, 15, 19-21.
1898	None.....	June 9, 30; July 1.	1903	do.....	None.

GEORGIA.

Central Division: NEWTON COUNTY. Station: COVINGTON.

J. M. DEARING, Observer.

[Established by U. S. Weather Bureau in June, 1893. Latitude, 33° 34' N. Longitude, 83° 50' W. Elevation, 800 feet.]

This station is located in the suburbs of the town of Covington, about one-half mile southeast of its center, and has the advantages of the open country. The general contour of the country is rolling, with alternating hills and valleys.

The maximum and minimum thermometers are exposed in a standard shelter, which is located in an open garden, about 100 feet from the residence of the observer. The thermometers are about 8 feet above the ground, the shelter being attached to a fence.

The rain gage is in the middle of the garden, 40 feet from a fence, and free from obstructions of any kind. Its top is 3 feet above the ground.

The mean temperatures for this station have been computed from the means of the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	44	55	73	34	6	47	42	4.0	7	3.1	7.7	0.7	4.0
January.....	42	52	73	33	6	48	39	4.1	9	2.5	2.4	0.2	1.5
February.....	42	52	78	32	-10	47	35	6.5	9	6.3	10.5	2.1	6.0
Winter mean.....	43	53		33				14.6	25	11.9	20.6	3.0	
March.....	54	65	84	44	10	59	51	5.2	9	7.6	3.4	T.	0.2
April.....	61	73	92	50	30	66	56	4.2	8	4.3	7.5	0.0	0.0
May.....	73	85	98	61	39	76	68	2.7	8	1.0	2.2	0.0	0.0
Spring mean.....	63	74		52				12.1	25	12.9	13.1	T.	
June.....	78	89	103	66	46	80	73	3.8	10	2.7	14.8	0.0	0.0
July.....	80	91	104	70	58	83	78	5.0	11	3.5	4.1	0.0	0.0
August.....	79	90	105	69	54	83	76	6.4	10	5.4	5.2	0.0	0.0
Summer mean.....	79	90		68				15.2	31	11.6	24.1	0.0	
September.....	74	85	102	62	39	76	72	3.0	6	1.0	4.1	0.0	0.0
October.....	63	74	91	51	30	67	58	3.0	6	3.0	1.9	0.0	0.0
November.....	52	64	82	41	17	58	48	2.8	5	1.3	3.7	T.	T.
Fall mean.....	63	74		51				8.8	17	6.3	9.7	T.	
Annual mean.....	62	73	105	51	-10			50.7	98	42.7	67.5	3.0	6.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 29.....	June 28, 29.	1900	Jan. 1; Feb. 17.....	July 23; Aug. 3, 9, 11, 12, 18, 29.
1895	Jan. 1, 13; Feb. 7-9, 14.	None.	1901	Dec. 21.....	June 25; July 11, 12, 25, 26.
1896	None.	Do.	1902	None.	June 12, 30; July 1, 2, 4-8, 10, 17; Aug. 20, 21.
1897	Jan. 27-29.....	June 24, 25, 27, 30; July 1, 2, 4.	1903	.....do.....	None.
1898	None.	June 30.			
1899	Feb. 8, 13-15; Mar. 6...	June 3, 8, 9, 15, 16, 20-22; July 12-19; Aug. 9-13, 18, 20-22; Sept. 4, 6, 7, 9.			

GEORGIA.

Eastern District: RICHMOND COUNTY. Station: AUGUSTA.

D. FISHER, Observer.

[Established by Signal Service in November, 1870. Latitude, 33° 28' N. Longitude, 81° 54' W. Elevation, 130 feet.]

The following buildings have been occupied since the establishment of the station: November 1, 1870, 17 McIntosh street, elevation, 173 feet; May 15, 1872, corner Broad and McIntosh streets, elevation, 173 feet; December 1, 1878, 735 and 737 Reynolds street, elevation, 185.4 feet; May 1, 1891, third floor United States Government building, elevation, 179.5 feet.

The station is supplied with a complete equipment of meteorological instruments, all of which are exposed from the tower roof of the United States Government building, 78 feet from the ground, except the self-recording rain gage, which is located upon the main roof, 54 feet above ground. The shelter is elevated 10 feet above the tower roof.

The city of Augusta is situated on the south side of the Savannah River, at the head of river navigation. The city is 208 miles from the mouth of the river, and lies in a deep valley entirely encircled by high hills, which range in altitude from 200 to 300 feet, except that from southeast to south the boundary land is not so high, but is, however, somewhat elevated above the city.

Tabulated data are from the following periods of observation: Snowfall, thirty-one years, 1873-1903; humidity, fifteen years, 1888-1903; sunshine, two years, April, 1902, to December, 1903; wind direction, thirty-one years, 1873-1903; mean temperature and mean precipitation, thirty-two years, 1872-1903; all maximum and minimum temperature data, twenty-nine years, 1875-1903; frost, thirty-one years, 1873-1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine		Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible
												Average depth.	Greatest depth in 24 hours.							
December.....	48	58	78	38	7	57	40	3.4	9	1.2	4.0	0.3	1.5	84	2.47	69	2.59	179	58	W.
January.....	47	56	80	38	6	56	39	4.2	11	7.8	3.4	0.1	3.0	83	2.32	67	2.39	156	49	W.
February.....	50	60	84	40	3	58	38	4.5	10	3.0	7.2	0.5	6.7	82	2.53	64	2.92	170	55	W.
Winter mean...	48	58	.....	39	.....	.....	.....	12.1	30	12.0	14.6	0.9	.....	83	2.44	67	2.63	158	54	W.
March.....	56	67	89	45	14	62	51	4.9	12	4.6	7.8	T.	0.8	80	3.17	60	3.24	179	48	W.
April.....	64	75	93	53	29	69	56	3.6	8	1.3	6.2	0.0	0.0	76	3.92	55	3.85	281	72	W.
May.....	72	83	100	61	41	77	65	3.3	9	3.0	3.9	0.0	0.0	75	5.23	57	5.33	312	72	SE.
Spring mean.....	64	75	.....	53	.....	.....	.....	11.8	29	8.9	17.9	T.	.....	77	4.11	57	4.11	257	64	W.
June.....	79	89	103	69	46	83	75	4.6	11	4.8	3.3	0.0	0.0	80	7.30	65	6.77	323	76	S.
July.....	81	91	105	71	57	86	78	5.2	12	4.1	5.4	0.0	0.0	82	7.97	70	7.92	350	80	SE.
August.....	80	89	105	71	58	84	78	5.6	13	2.5	6.8	0.0	0.0	85	7.80	74	7.98	262	71	NE.
Summer mean...	80	90	.....	70	.....	.....	.....	15.4	36	11.4	15.5	0.0	.....	82	7.09	70	7.56	322	75	SE.
September.....	75	84	101	66	41	80	72	3.7	7	5.5	6.8	0.0	0.0	84	6.65	69	6.46	272	74	NE.
October.....	65	75	94	54	32	71	60	2.5	6	0.3	1.1	0.0	0.0	82	4.23	69	4.47	248	70	NE.
November.....	55	65	85	44	22	60	50	3.0	8	1.3	2.2	0.0	0.0	86	3.07	69	3.47	164	52	NW.
Fall mean.....	65	75	.....	55	.....	.....	.....	9.2	21	7.1	10.1	0.0	.....	84	4.65	69	4.60	228	65	NE.
Annual mean....	64	74	105	54	3	.....	.....	48.5	116	39.4	58.1	0.9	6.7	82	4.72	66	4.78	244	65	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD DECEMBER 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28-30.....	None.	1900	Jan. 2-4, 30; Feb. 1, 17, 18.	July 15; Aug. 19-21.
1895	Dec. 4, 6, 7; Jan. 1, 13, 14; Feb. 7-10, 13, 14.	Do.	1901	Feb. 24; Dec. 16-18, 20-22.	None.
1896	Dec. 26; Jan. 4, 5; Feb. 18, 21, 22.	July 29, 30; Aug. 10; Sept. 18.	1902	Dec. 27, 28.....	June 30; July 1, 4-7; Aug. 21.
1897	Jan. 27-30.....	June 30; July 1-3.	1903	Jan. 13; Feb. 18; Nov. 28; Dec. 27.	None.
1898	Jan. 2; Feb. 2, 4.....	None.			
1899	Dec. 30; Feb. 8, 9, 12-15; Mar. 7, 8.	Do.			

GEORGIA.

Central Division: WASHINGTON COUNTY. Station: HARRISON.

A. W. J. Wood, Observer.

[Established by U. S. Weather Bureau in July, 1898. Latitude, 32° 47' N. Longitude, 82° 44' W. Elevation, 245 feet.]

This station is at the country seat of the observer, about 1½ miles from the town of Harrison. The surface of the surrounding country is moderately undulating, consisting of numerous ridges, between which run very small streams varying in length from 1 to 3 miles. These small streams or "branches" run from west to east and from east to west, forming larger streams, which in turn empty into various rivers.

The maximum and minimum thermometers are exposed in a shelter of standard pattern, on the north side of the observer's residence, about 8 feet above the ground, under a large sycamore tree. The shelter is over sod and has unobstructed ventilation.

The rain gage is about 60 feet from the house, in an open space, free from obstructions of any kind. The top of the gage is 5 feet above the ground.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1898, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	46	57	74	35	16	50	43	3.4	8	3.0	2.0	1.1	4.0
January.....	46	56	73	36	12	48	44	3.2	9	5.7	4.2	0.5	2.5
February.....	47	57	80	37	- 2	51	44	6.0	10	6.4	5.6	2.5	7.0
Winter mean.....	46	57		36				12.6	27	15.1	11.8	4.1	
March.....	57	68	86	47	18	62	53	5.4	10	2.9	6.3	0.0	0.0
April.....	61	73	91	48	30	66	56	2.9	6	2.6	3.5	0.0	0.0
May.....	73	85	96	61	45	77	71	3.4	8	1.7	5.4	0.0	0.0
Spring mean.....	64	75		52				11.7	24	7.2	15.2	0.0	
June.....	79	88	102	69	52	82	75	5.8	10	2.2	10.2	0.0	0.0
July.....	81	92	103	71	56	83	81	4.6	11	3.8	3.6	0.0	0.0
August.....	81	90	101	72	63	83	79	7.9	10	6.0	4.9	0.0	0.0
Summer mean.....	80	90		71				18.3	31	12.0	18.7	0.0	
September.....	75	85	96	65	40	78	73	2.6	7	0.4	4.2	0.0	0.0
October.....	65	76	90	55	32	69	63	3.1	8	4.0	2.9	0.0	0.0
November.....	55	65	82	44	20	60	51	3.1	7	1.4	3.6	0.0	0.0
Fall mean.....	65	75		55				8.8	22	5.8	10.7	0.0	
Annual mean.....	64	74	103	53	- 2			51.4	104	40.1	56.4	4.1	7.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1899	Feb. 7, 8, 12-15; Mar. 8; Dec. 6, 30.	June 8, 10, 15, 16, 21; July 14-17.	1902	Jan. 13, 14; Feb. 11; Dec. 27.	June 30; July 1, 2, 4-7, 10.
1900	Jan. 1-4; Feb. 1, 2, 17-19.	Aug. 9-11, 19-22.	1903	Jan. 13; Feb. 17-19; Nov. 28; Dec. 27.	None.
1901	Feb. 21, 24, 25; Mar. 7; Dec. 16-18, 20-22.	None.			

GEORGIA.

Central Division: TALBOT COUNTY. Station: TALBOTTON.

W. T. DENNIS, Observer.

[Established by U. S. Weather Bureau in February, 1892. Latitude, 32° 45' N. Longitude, 84° 33' W. Elevation, 750 feet.]

This station is located within the corporate limits of the town of Talbotton, but its surroundings are such that it is in no wise affected by its proximity to the town, or any large body of timber or mountain ranges. The surrounding country is undulating, or moderately hilly.

The maximum and minimum thermometers are exposed in a shelter of standard pattern, attached to a picket fence. The shelter is 4 feet above grass, 35 feet southeast of a two-story frame building, and faces the north.

The rain gage is located in an open space 30 feet south of the building, and is free from obstructions of any kind. The height of the top of the gage above ground is 2 feet.

The mean temperatures for this station have been computed from the means of the maximum and minimum thermometer readings. The published record covers the period from February 1, 1893, to December 31, 1903, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	46	57	75	36	7	50	42	4.0	7	4.9	3.0	0.2	2.0
January.....	46	56	76	36	10	51	42	3.9	8	6.1	3.8	0.3	3.0
February.....	46	57	79	36	- 6	52	36	6.6	8	9.3	7.0	1.2	6.0
Winter mean.....	46	57		36				14.5	23	20.3	13.8	1.7	
March.....	57	67	86	46	17	60	53	6.3	10	4.0	7.4	0.0	0.0
April.....	62	74	94	50	28	67	57	3.6	7	3.6	7.4	0.0	0.0
May.....	72	84	97	60	41	76	68	2.6	6	1.7	6.0	0.0	0.0
Spring mean.....	64	75		52				12.5	23	9.3	20.8	0.0	
June.....	78	88	103	67	49	81	73	3.4	9	0.4	5.8	0.0	0.0
July.....	79	90	105	69	55	82	77	6.0	12	2.1	7.1	0.0	0.0
August.....	79	88	103	69	61	82	74	5.7	12	3.5	3.8	0.0	0.0
Summer mean.....	79	89		68				15.1	33	6.0	16.7	0.0	
September.....	74	84	100	64	42	77	72	2.8	5	1.8	4.6	0.0	0.0
October.....	64	75	90	53	29	68	61	3.7	6	7.6	2.5	0.0	0.0
November.....	54	65	82	43	20	58	51	3.1	5	2.0	1.7	0.0	0.0
Fall mean.....	64	75		53				9.6	16	11.4	8.8	0.0	
Annual mean.....	63	74	105	52	- 6			51.7	95	47.0	60.1	1.7	6.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Feb. 16; Mar. 27; Nov. 12; Dec. 28-30.	None.	1900	Jan. 1-4, 20, 30; Feb. 1, 2, 17-19.	Aug. 10, 11, 19-22; Sept. 4, 12.
1895	Jan. 1, 13, 14; Feb. 7, 10, 13, 14, 16-18; Dec. 4, 6, 14, 31.	Do.	1901	Feb. 21, 24, 25; Mar. 6, 7; Dec. 15-22.	July 12.
1896	Jan. 4, 5; Feb. 18, 21, 22.	Do.	1902	Jan. 13, 14; Feb. 3, 10, 18; Dec. 27, 28.	June 30; July 1-7, 10; Aug. 15, 20, 21.
1897	Jan. 27, 30.	Do.	1903	Jan. 9, 13; Feb. 16, 17; Nov. 19, 27, 28; Dec. 3, 7, 27.	None.
1898	Jan. 2, 3; Feb. 2-4; Dec. 14.	Do.			
1899	Feb. 8, 9, 12-14; Mar. 7, 8; Dec. 30.	June 8, 15, 21, 22; July 13-18; Aug. 12; Sept. 6.			

GEORGIA.

Central Division: LAURENS COUNTY. Station: DUDLEY

J. H. M. O'SULLIVAN, Observer.

[Established by United States Weather Bureau in February, 1896. Latitude, 32° 30' N. Longitude, 83° 7' W. Elevation, unknown.]

This station is situated in the northern part of the town of Dudley, and its surroundings have the characteristics of an open, slightly rolling country, the nearest forest being about one-fourth of a mile distant. It is located on the highest point of land in this section.

The maximum and minimum thermometers are exposed in a regulation shelter about 100 feet south of observer's residence. The shelter is fastened to four posts driven into the ground. The thermometers are 5 feet above sod.

The rain gage is 40 feet west of the shelter and 100 feet south of the residence, which is 20 feet in height. The top of the gage is 4 feet above ground.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1896, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	48	58	78	37	12	51	44	3.8	7	1.9	8.1	0.4	2.0	
January.....	47	58	77	36	12	52	44	2.9	7	1.9	2.4	T.	T.	
February.....	48	59	80	38	— 3	54	44	6.4	9	8.4	10.3	1.8	7.2	
Winter mean.....	48	58		37				13.1	23	12.2	20.8	2.2		
March.....	59	71	91	48	12	64	54	5.7	9	9.6	5.6	T.	0.2	
April.....	65	77	97	52	29	73	58	3.8	7	4.2	4.1	0.0	0.0	
May.....	75	88	100	62	41	79	71	2.9	7	2.8	2.6	0.0	0.0	
Spring mean.....	66	79		54				12.4	23	16.6	12.3	T.		
June.....	81	92	104	70	51	85	76	3.2	9	2.0	7.0	0.0	0.0	
July.....	82	93	105	72	61	84	81	5.9	13	5.4	6.0	0.0	0.0	
August.....	82	92	103	72	58	86	79	4.7	11	3.0	3.1	0.0	0.0	
Summer mean.....	82	92		71				13.8	33	10.4	16.1	0.0		
September.....	77	88	101	66	35	80	74	3.4	5	0.7	1.9	0.0	0.0	
October.....	66	78	94	55	30	71	64	3.6	6	2.5	3.6	0.0	0.0	
November.....	57	68	86	45	19	61	52	3.8	6	1.0	6.6	0.0	0.0	
Fall mean.....	67	78		55				10.8	17	4.2	12.1	0.0		
Annual mean.....	66	77	105	54	— 3			50.1	96	43.4	61.3	2.2	7.2	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1896	Jan. and Feb. missing; Dec. 26.	May 18, 31; June 1, 24, 26, 29; July 26, 30, 31; Aug. 4, 9-13, 23; Sept. 18.	1901	Feb. 21, 24, 25; Mar. 6, 7; Nov. 18; Dec. 16-18, 20-22.	May and June missing; July 11, 12, 30.
1897	Jan. 8, 28-30; Feb. 28.	June 12-15, 18, 19, 23, 25, 27, 28; July 1, 2.			
1898	Jan. 2; Feb. 2, 4; Nov. 26, 27; Dec. 14.	June 3, 4, 10, 11, 30; July 1.	1902	Jan. 5; Feb. 11; Dec. 27, 28.	July 1, 2, 4, 6, 7, 10.
1899	Feb. 9, 12-15; Mar. 7, 8; Dec. 6, 29, 30.	June 8, 9, 14-16, 21, 22; July 14-17; Aug. 10, 12; Sept. 6, 7, 9, 10.	1903	Feb. 18; Nov. 28; Dec. 7, 27.	None.
1900	Jan. 1, 2, 4, 30; Feb. 1, 2, 18.	Aug. 9, 11, 19-22.			

GEORGIA.

Coastal Plain: CHATHAM COUNTY. Station: SAVANNAH.

H. B. BOYER, Local Forecaster.

[Established by Signal Service in December, 1870. Latitude, 32° 5' N. Longitude, 81° 5' W. Elevation, 40 feet.]

Savannah is situated on the south bank of the Savannah River, about 18 miles from the sea. It is on a plateau about 40 feet above the stream, this bluff or plateau being about a mile wide at its eastern end and broadening as it extends westward. Surrounding it the land is low and flat. The river is over 700 feet wide in front of the city.

From its establishment and until September 1, 1899, the station was located on Bay street, which runs along that portion of the bluff nearest the river, and while there were several removals during the period mentioned the location remained essentially the same so far as instrumental exposure was concerned, the office merely having been moved back and forth on the same street. On September 1, 1899, the station was moved to its present location, the United States post-office and court-house building, corner of Bull and President streets.

The thermometers are exposed in a standard roof shelter 79 feet above the ground.

The present anemometer exposure is decidedly faulty in that a high tower, extending far above the anemometer, is located about 40 feet to the northwest of the instrument platform. This tower exerts a marked influence on the direction and velocity of the wind when blowing from the northwest quadrant. The anemometer cups are 89 feet above the ground. The rain and snow gages have always been exposed on the roof. Their present elevation is 74 feet above ground.

Maximum and minimum temperature data are from thirty years record, 1874-1903; sunshine data, thirteen years, 1891-1903; wind direction from fifteen years; humidity, fifteen years. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871 to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	52	61	80	44	12	60	44	3.2	9	1.0	5.5	.....	.....	82	3.01	73	3.30	5.6	56	NW.
January.....	51	60	80	43	12	60	44	3.1	10	3.6	6.4	.....	.....	81	2.76	72	3.04	5.3	51	NW.
February.....	54	62	84	45	8	61	43	3.3	10	4.2	3.1	.....	.....	80	3.04	73	3.30	5.8	52	NW.
Winter mean.....	52	61	.....	44	.....	.....	.....	9.6	29	8.8	15.0	.....	.....	81	2.94	73	3.21	5.6	53	NW.
March.....	59	68	88	51	24	65	52	3.7	9	2.3	3.1	.....	0.0	80	3.62	73	3.92	6.9	58	S.
April.....	66	75	90	57	33	70	61	3.3	8	1.9	1.1	.....	0.0	76	4.52	71	4.82	8.7	67	S.
May.....	74	82	101	65	44	78	70	2.8	9	2.7	4.0	.....	0.0	77	6.24	74	6.10	9.3	67	S.
Spring mean.....	66	75	.....	58	.....	.....	.....	9.8	26	6.9	8.2	.....	.....	78	4.79	73	5.01	8.3	64	S.
June.....	79	88	100	71	50	83	76	6.1	12	6.8	8.1	.....	0.0	80	7.72	79	7.87	8.8	62	S.
July.....	82	90	105	74	63	85	78	5.8	13	3.7	7.9	.....	0.0	82	8.43	81	8.59	8.4	60	SW.
August.....	81	88	102	73	61	85	78	7.9	14	6.4	14.4	.....	0.0	84	8.55	83	8.53	7.8	58	SW.
Summer mean.....	81	89	.....	73	.....	.....	.....	19.8	39	16.9	30.4	.....	.....	82	8.11	81	8.33	8.3	60	SW.
September.....	76	84	97	69	46	80	72	5.7	11	2.1	12.0	.....	0.0	86	7.55	82	7.67	7.7	62	NE.
October.....	67	75	92	59	37	73	62	3.7	7	1.0	7.7	.....	0.0	83	5.10	77	5.51	7.2	63	NE.
November.....	58	68	83	50	22	64	54	2.4	7	1.0	0.6	.....	0.0	83	3.76	75	4.17	6.3	60	NE.
Fall mean.....	67	76	.....	59	.....	.....	.....	11.8	25	4.1	20.3	.....	.....	84	5.47	78	5.81	7.1	62	NE.
Annual mean.....	66	75	105	58	8	.....	.....	51.0	119	36.7	73.9	.....	2.0	81	5.34	76	5.39	7.3	60	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 27; Feb. 5, 16, 17, 25; Mar. 27; Nov. 12; Dec. 27-30.	June 13, 29; Aug. 9-11, 13-17; Sept. 10, 11.	1899	Jan. 2; Feb. 8, 9, 12-15; Mar. 7, 8; Dec. 5, 29-31.	May 12, 17, 18, 21; June 2, 10, 14, 15, 21, 29; July 14, 15, 17, 18, 29; Aug. 3-7, 11, 18-20, 24, 25.
1895	Jan. 1, 2, 5, 13, 14; Feb. 7-11, 13-16, 18; Dec. 4-7, 14, 31.	June 1-3, 22, 23, 25; July 8, 9, 28-30; Aug. 19, 24, 25, 30.	1900	Jan. 1-4, 29, 30; Feb. 1, 2, 17-19, 25.	July 6-8; Aug. 9, 10, 12-14, 17-24; Sept. 28.
1896	Jan. 2, 4-6; Feb. 17, 18, 21, 22; Dec. 3-5, 25, 26.	May 11, 12; June 1, 25, 26, 28, 29; July 14, 15, 24-26, 28-31; Aug. 2-4, 8, 10, 11, 17, 18, 24; Sept. 17-19.	1901	Jan. 19, 26; Feb. 1, 21, 23-25; Mar. 6, 7; Nov. 16, 17; Dec. 7, 16-22.	June 25, 30; July 11, 12, 25, 31.
1897	Jan. 7-9, 27-30; Feb. 28.	June 13-15, 17, 18, 25-27, 29, 30; July 1-3, 24, 26; Aug. 1, 2, 28.	1902	Jan. 4, 5, 12-14; Feb. 3, 5, 10, 11, 18; Dec. 26-28.	May 4; June 27, 28, 30; July 1, 2, 4-7, 17, 31; Aug. 20-22.
1898	Jan. 1-3; Feb. 1-4, 7, 22; Nov. 27; Dec. 10, 11, 14.	May 28-30; June 12-14, 26-30; July 16-21.	1903	Jan. 9, 12; Feb. 17, 18; Nov. 19, 20, 27, 28; Dec. 3, 26, 27.	May 24; July 19, 21, 23; Aug. 7, 25-30.

GEORGIA.

Southern Division: STEWART COUNTY. Station: LUMPKIN.

A. W. LATIMER, Observer.

[Established by U. S. Weather Bureau in February, 1892. Latitude, 32° N. Longitude, 84° 37' W. Elevation, 650 feet.]

This station is situated near the center of the town of Lumpkin, on the southwest side of the public square. The station is located on a knoll or hill, a part of the foothills of the Blue Ridge Mountains extending down the banks of the Chattahoochee River. The surrounding country is more or less rugged, being broken by numerous hills and valleys.

The maximum and minimum thermometers are exposed in a shelter in an open space about 50 feet from any building. The shelter is of the standard pattern. The height of the thermometers above the sod is 4 feet.

The rain gage is situated 10 feet from the instrument shelter in an open space, free from any obstructions, and 40 feet from the residence. The top of the gage is about 3½ feet above the ground.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1896, TO DECEMBER 31, 1903.

Months.	Temperature.								Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	49	59	74	39	10	52	45	4.2	6	3.7	3.2	0.1	1.0
January.....	48	57	75	39	15	52	46	3.5	6	6.2	3.3	0.2	1.0
February.....	49	59	80	40	-5	53	46	7.4	8	6.1	9.5	0.7	3.5
Winter mean.....	49	58		39				15.1	20	16.0	16.0	1.0	
March.....	59	68	87	49	21	62	55	6.3	6	3.8	5.7	T.	T.
April.....	64	75	93	54	34	71	60	3.6	5	2.5	2.8	0.0	0.0
May.....	75	87	99	64	42	79	71	3.2	5	2.5	11.7	0.0	0.0
Spring mean.....	66	77		56				13.1	16	8.8	10.2	T.	
June.....	80	90	101	70	49	84	71	3.4	9	1.4	3.9	0.0	0.0
July.....	82	91	106	72	62	84	78	4.9	9	5.5	3.9	0.0	0.0
August.....	81	90	103	72	62	84	78	5.5	9	5.0	2.2	0.0	0.0
Summer mean.....	81	90		71				13.8	27	11.9	10.0	0.0	
September.....	77	87	102	67	46	80	75	3.1	4	0.8	4.0	0.0	0.0
October.....	67	77	94	57	32	71	63	3.3	4	4.8	1.8	0.0	0.0
November.....	58	68	84	47	20	62	53	2.1	4	1.1	4.0	T.	T.
Fall mean.....	67	77		57				8.5	12	6.7	9.8	T.	
Annual mean.....	66	76	106	56	-5			50.5	75		46.0	1.0	3.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1896	Jan. 4, 5; Feb. 21.....	None.	1901	Feb. 24; Dec. 15-21...	June 27; July 11-13, 26-30.
1897	None.	Aug. 1.	1902	Jan. 13, 14; Feb. 11; Dec. 27-29.	June 5; July 1-7; Aug. 16, 21, 22.
1898	Jan. 2, 3; Feb. 2.....	None.	1903	Jan. 13; Feb. 17, 18; Nov. 27; Dec. 27.	July 23; Aug. 26-29; Sept. 6.
1899	Feb. 8, 9, 12-14; Mar. 7, 8.	June 16, 21, 22.			
1900	Jan. 2, 3, 30; Feb. 1, 18.	Aug. 20.			

GEORGIA.

Southern Division: CALHOUN COUNTY. Station: MORGAN.

J. J. BECK, Observer.

[Established by U. S. Weather Bureau in March, 1892. Latitude, 31° 32' N. Longitude 84° 35' W. Elevation, 337 feet.]

This station is practically in the open country, situated on the south side of the village of Morgan in a level section, 2 miles from Notchaway Creek.

The maximum and minimum thermometers are exposed in a standard shelter, about 25 feet north of the residence of the observer. The thermometers are 4 feet above the ground.

The rain gage is about 10 feet from the shelter in an open space, free from obstructions. The top of the gage is 3 feet above the ground.

The mean temperatures for this station have been computed from the means of the maximum and minimum thermometer readings. The published records cover the period from January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	48	60	80	37	10	53	42	3.6	6	2.2	6.5	T.	T.
January.....	48	58	80	37	13	52	44	3.9	7	4.1	3.0	0.1	1.5
February.....	50	60	83	39	-1	57	42	7.2	8	6.1	2.7	0.8	4.5
Winter mean.....	49	59		38				14.7	21	12.4	12.2	0.9	
March.....	58	70	87	47	20	64	55	5.6	6	5.9	1.7	0.0	0.0
April.....	64	76	90	52	31	68	58	3.4	6	3.2	4.0	0.0	0.0
May.....	74	68	98	61	41	78	70	2.8	6	3.8	2.6	0.0	0.0
Spring mean.....	65	71		53				11.8	18	12.9	8.3	0.0	
June.....	78	89	102	68	51	83	74	4.2	8	2.1	6.0	0.0	0.0
July.....	80	91	104	70	55	84	79	4.9	9	5.2	6.0	0.0	0.0
August.....	80	90	100	70	58	83	78	6.4	9	7.6	14.8	0.0	0.0
Summer mean.....	79	90		69				15.5	26	14.9	26.8	0.0	
September.....	76	88	100	64	41	79	71	2.9	5	2.3	0.3	0.0	0.0
October.....	66	78	93	54	26	69	63	2.5	4	1.4	3.6	0.0	0.0
November.....	55	66	86	44	20	60	49	3.2	5	2.2	7.2	0.0	0.0
Fall mean.....	66	77		54				8.6	14	5.0	11.1	0.0	
Annual mean.....	65	74	104	54	-1			50.6	79	46.1	58.4	0.9	4.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28-30.	June 29.	1900	Jan. 1-3, 29-31; Feb. 1, 3, 17, 18.	None.
1895	Jan. 1, 13, 14; Feb. 7-9, 13; Dec. 4-7.	June 1.	1901	Jan. 18; Feb. 23; Mar. 6; Dec. 14-21.	July 12.
1896	Feb. 18, 26; Dec. 26.	July 31; Sept. 18.	1902	Jan. 12-14, 16; Feb. 10; Dec. 26, 27.	July 7; Aug. 21.
1897	Jan. 27-29.	June 19, 25, 28; July 1, 2.	1903	Jan. 9, 10, 13, 14, 16; Nov. 28; Dec. 27-29.	None.
1898	Jan. 2-4; Feb. 2, 4, 22; Dec. 5, 10, 12, 13, 26.	None.			
1899	Feb. 12-14.	June 8, 21; July 16-19.			

GEORGIA.

Southern Division: WORTH COUNTY. Station: POULAN.

J. F. WILSON, Observer.

[Established by Signal Service in August, 1890. Latitude, 31° 30' N. Longitude, 83° 49' W. Elevation, 365 feet.]

This station is located on a slight southern slope in what is known as the high pines of the "wire-grass" region of Georgia, near the center of Worth County, about one-half mile east of the town of Poulan, at a point locally known as "Piney Park," its surroundings being wholly rural. At the time of the establishment of the station the surroundings were the tall, long-leaf yellow pines. Gradually these have given place to farms, but some forest still remains. The immediate surroundings, however, may have somewhat affected the recent records, since the shade trees and ornamental shrubbery inclosing the home of the observer have a perceptible effect on the extreme heat of summer.

The dry and wet bulb and maximum and minimum thermometers are exposed in a regulation shelter. The height of the thermometers above the sod is about 4½ feet.

The rain gage is 10 feet west of the shelter, in a fairly favorable location, and its top is 3 feet above the ground. The exposure is good, except on the east side, where surrounding trees offer a slight obstruction.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometers. The published records cover the period from January 1, 1891, to December 31, 1903, except the number of days with maximum temperature above 90° and minimum below 32°, which is for the period 1893-1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.		
December.....	50	63	80	36	11	53	45	3.3	8	3.0	4.2			
January.....	48	61	83	36	10	54	42	3.5	9	2.1	3.9	0.1	1.5	
February.....	51	62	83	39	-1	59	41	5.9	9	3.3	6.6	0.8	5.0	
Winter mean.....	50	62		37				12.7	26	8.4	14.7	0.9		
March.....	59	72	89	47	19	64	55	5.2	9	4.9	6.7			
April.....	64	77	91	50	27	68	59	2.9	6	2.2	4.2			
May.....	73	86	100	60	41	76	70	2.9	8	1.1	8.9			
Spring mean.....	65	78		52				11.0	23	8.2	19.8			
June.....	79	91	104	67	49	83	76	4.6	10	7.0	3.2			
July.....	81	92	102	70	56	82	78	6.2	15	5.4	4.9			
August.....	81	91	105	70	53	83	78	7.7	15	5.7	14.7			
Summer mean.....	80	91		69				18.5	40	18.1	22.8			
September.....	76	88	101	65	41	79	74	3.4	8	1.1	3.4			
October.....	66	80	93	53	32	71	61	2.6	6	0.6	1.6			
November.....	57	70	88	43	21	61	51	2.7	6	2.8	0.5			
Fall mean.....	66	79		54				8.7	20	4.5	5.5			
Annual mean.....	65	75	105	53	-1			50.9	109	39.2	62.8	0.9	5.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Nov. 12; Dec. 23-30...	June 29.	1900	Jan. 2-4, 29, 30; Feb. 1, 2, 17-19.	Aug. 20; Sept. 29.
1895	Jan. 1, 13, 14; Feb. 7-10, 13, 14; Dec. 4, 6, 7, 14.	June 1.	1901	Jan. 19; Feb. 1, 24; Mar. 7; Nov. 17, 18; Dec. 16-22.	July 12.
1896	Jan. 2, 4-6; Feb. 18, 22.	June 26-30; July 30, 31; Aug. 5; Sept. 16-18.	1902	Jan. 6, 13-15, 17; Dec. 27-29.	July 2; Aug. 15.
1897	Jan. 7-9, 27-30.....	June 12-15, 19, 20, 23, 26-28; July 2; Aug. 1-3.	1903	Jan. 9, 13; Feb. 18; Nov. 27, 28; Dec. 7, 8, 11, 27.	None.
1898	Jan. 2-4; Feb. 2-4; Dec. 27.	May 31; June 4, 12, 30.			
1899	Feb. 9, 12-14; Mar. 8; Dec. 6.	July 17, 18.			

GEORGIA.

Southern Division: WAYNE COUNTY. Station: JESUP

M. P. SNELL, Observer.

[Established by U. S. Weather Bureau in December, 1906. Latitude, 31° 41' N. Longitude 81° 55' W. Elevation, 100 feet.]

This station is located in the southwestern part of the village of Jesup, with surroundings closely resembling those of the country, there being about one house to an acre of land. This is a comparatively low, sandy section, about 5 miles from the Altamaha River.

The maximum and minimum thermometers are exposed in a regulation shelter, and are 4 feet above ground. The shelter is in an open space about 25 feet from the nearest building.

The rain gage is 6 feet from the thermometer shelter, 25 feet from the residence, 12 feet from a fence, and 45 feet east of a tree.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometer readings.

Tabulated data are for the period of observation January 1, 1897, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1897, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	50	63	80	38	16	53	46	2.8	5	1.7	2.5	T.	T.
January.....	50	62	80	39	15	54	49	2.8	6	3.7	1.0		
February.....	52	64	83	40	1	58	48	5.4	7	7.0	12.4	0.4	3.0
Winter mean.....	51	63		39				11.0	18	12.4	15.9	0.4	
March.....	61	74	91	46	20	66	58	4.6	7	2.2	4.3		
April.....	64	77	91	51	30	67	61	2.7	6	1.8	4.7		
May.....	74	88	102	61	47	77	72	3.3	7	2.8	1.7		
Spring mean.....	66	80		54				10.6	20	6.8	10.7		
June.....	79	91	101	67	49	82	78	5.7	10	1.5	8.2		
July.....	82	93	104	70	60	83	81	5.5	13	4.2	3.0		
August.....	82	93	102	71	62	86	79	8.8	12	4.6	6.5		
Summer mean.....	81	92		69				20.0	35	10.3	17.7		
September.....	76	87	102	66	42	78	74	4.2	8	1.2	9.6		
October.....	68	79	95	57	34	70	65	4.4	6	2.1	5.4		
November.....	58	71	86	46	18	63	52	2.8	5	0.8	0.8		
Fall mean.....	67	79		56				11.4	19	4.1	15.8		
Annual mean.....	66	78	104	55	1			53.0	92	33.6	60.1	0.4	3.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1897	Jan. 29, 30.....	June 15, 16; July 1-3.	1901	Mar. 7; Nov. 18; Dec. 17-19, 21, 22.	None.
1898	Jan. 2, 3; Feb. 2.....	May 30; June missing; July 20.	1902	Jan. 14; Dec. 27, 28...	
1899	Feb. 13-15; Mar. 8; Dec. 6.	May 18; June 8, 14, 15, 21; July 14-18; Aug. 7, 12; Sept. 10, 11.	1903	Feb. 18; Nov. 28.....	May 24-26; July 5, 22, 23, 27, 28; Aug. 25-28.
1900	Jan. 30; Feb. 1, 2, 18, 19.	None.			

GEORGIA.

Southern Division: WARE COUNTY. Station: WAYCROSS.

THOMAS SASSER, Observer.

[Established by the Signal Service in April, 1882. Latitude, 31° 12' N. Longitude, 82° 22' W. Elevation, 138 feet.]

This station is located almost in the center of the city of Waycross. Being on unused railroad property it has many of the characteristics of a rural station. It is about 100 yards northeast of the passenger depot of the Atlantic Coast Line system, in an inclosure occupied by the roadway department building.

The maximum and minimum thermometers are exposed in a regulation shelter, 15 feet north of a building. The thermometers are 4½ feet above sod.

The rain gage is 12 feet north of the shelter, 6 feet from a fence, the top of the gage being 16 feet above ground.

The mean temperatures for this station have been computed from the means of the maximum and minimum thermometer readings. The tabulated data cover the period from January 1, 1898, to December 31, 1903, as the earlier records are incomplete.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	50	62	79	39	12	54	47	2.2	6	1.6	3.0		
January.....	50	61	81	39	18	54	46	3.2	7	4.5	0.9		
February.....	51	62	85	40	4	56	48	3.8	8	4.0	4.3	0.5	3.0
Winter mean.....	50	62		39				9.2	21	10.1	8.2	0.5	
March.....	61	72	86	50	23	68	56	4.4	7	4.2	9.0		
April.....	64	76	90	53	35	68	61	2.6	7	1.5	2.6		
May.....	76	87	99	64	48	78	74	4.1	7	4.4	6.6		
Spring mean.....	67	78		56				11.1	21	10.1	18.2		
June.....	80	92	101	69	55	82	79	6.5	12	9.9	9.6		
July.....	82	92	102	72	61	83	82	6.6	14	2.9	8.4		
August.....	82	92	107	72	63	85	80	6.2	14	8.2	2.4		
Summer mean.....	81	92		71				19.3	40	21.0	20.4		
September.....	77	86	100	68	52	78	76	5.7	10	3.8	8.9		
October.....	68	78	92	58	36	71	65	4.0	6	4.1	5.1		
November.....	58	69	83	47	21	62	52	1.5	5	0.6	3.6		
Fall mean.....	68	78		58				11.2	21	8.5	17.6		
Annual mean.....	67	77	107	56	4			50.8	103	49.7	64.4	0.5	3.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1898	Jan. 2, 3.....	July 22.	1901	Dec. 17-19, 21-23.....	None.
1899	Feb. 13-15.....	June 16, 17; July 16; Aug. 7, 8.	1902	Jan. 14; 15; Dec. 27-29.	June 30; July 1-7.
1900	Jan. 2-4, 30; Feb. 2, 18, 19.	July 2, 7, 8, 22-24; Aug. 10-15, 18-24, 26, 29, 30.	1903	Nov. 2°.....	July 23.

GEORGIA.

Southern Division: THOMAS COUNTY. Station: THOMASVILLE.

R. THOMAS, JR., OBSERVER.

[Established by the Signal Service in April, 1878. Latitude, 30° 45' N. Longitude, 83° 50' W. Elevation, 330 feet.]

This station is located in the extreme southern portion of the State, about 10 miles from the Florida line. It is on the backbone of an elevated ridge extending across the State from northeast to southwest, in what is known as the "pine belt" of Georgia.

The maximum and minimum thermometers are exposed in a regulation shelter, situated about 30 feet south and in the rear of the store of the observer. The thermometers are about 4½ feet above ground.

The rain gage is in a vacant lot, 35 feet southeast of the store building. The top of the gage is 34 inches above ground. The nearest obstructions are from 30 to 35 feet distant.

The mean temperatures for this station have been obtained from the means of the maximum and minimum thermometer readings.

Absolute minimum temperatures are for the period 1889 to 1903; average number of days with maximum temperature above 90° and minimum below 32°, and frost data from April 1, 1897, to December 31, 1903; the remaining data are for the period April 1, 1878, to December 31, 1903. The record prior to 1892 is much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	53		79		13	60	47	3.9	8	2.5	7.0		
January.....	52		81		17	61	46	3.5	9	3.5	3.8		
February.....	54		81		2	62	44	5.0	9	4.1	4.8	0.5	0
Winter mean.....	53							12.4	26	10.1	15.6	0.5	
March.....	61		87		22	66	56	4.7	8	3.4	5.4		
April.....	67		92		35	71	62	3.6	6	3.4	5.8		
May.....	74		101		53	79	72	3.7	7	1.3	7.7		
Spring mean.....	67							12.0	21	8.1	18.9		
June.....	80		102		48	84	74	5.4	12	6.6	8.8		
July.....	82		106		62	83	79	6.8	15	7.7	4.8		
August.....	81		101		61	83	78	6.3	14	4.3	5.5		
Summer mean.....	81							18.5	41	18.6	19.1		
September.....	77		99		46	81	71	4.8	9	0.7	6.4		
October.....	68		97		35	73	65	3.4	5	3.3	2.0		
November.....	59		88		26	64	54	2.7	6	0.5	3.1		
Fall mean.....	68							10.9	20	4.5	11.5		
Annual mean.....	67		106		2			53.8	108	41.3	65.1	0.5	4 0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28.....	None.	1899	Feb. 9, 13, 14.....	None.
1895	Jan. 14; Feb. 8; Dec. 6.	Do.	1900	Jan. 2-4; Feb. 2, 18, 19.	Aug. 21-23.
1896	Jan. 5.....	Do.	1901	Dec. 16, 18, 21, 22.....	July 12.
1897	Jan. 23.....	June 20, 27.	1902	Dec. 27, 28.....	May 21; July 2, 3, 7.
1898	Jan. 2, 3.....	None.	1903	Nov. 28.....	July 23.

FLORIDA.

By ALEXANDER J. MITCHELL,
Section Director.

FLORIDA.

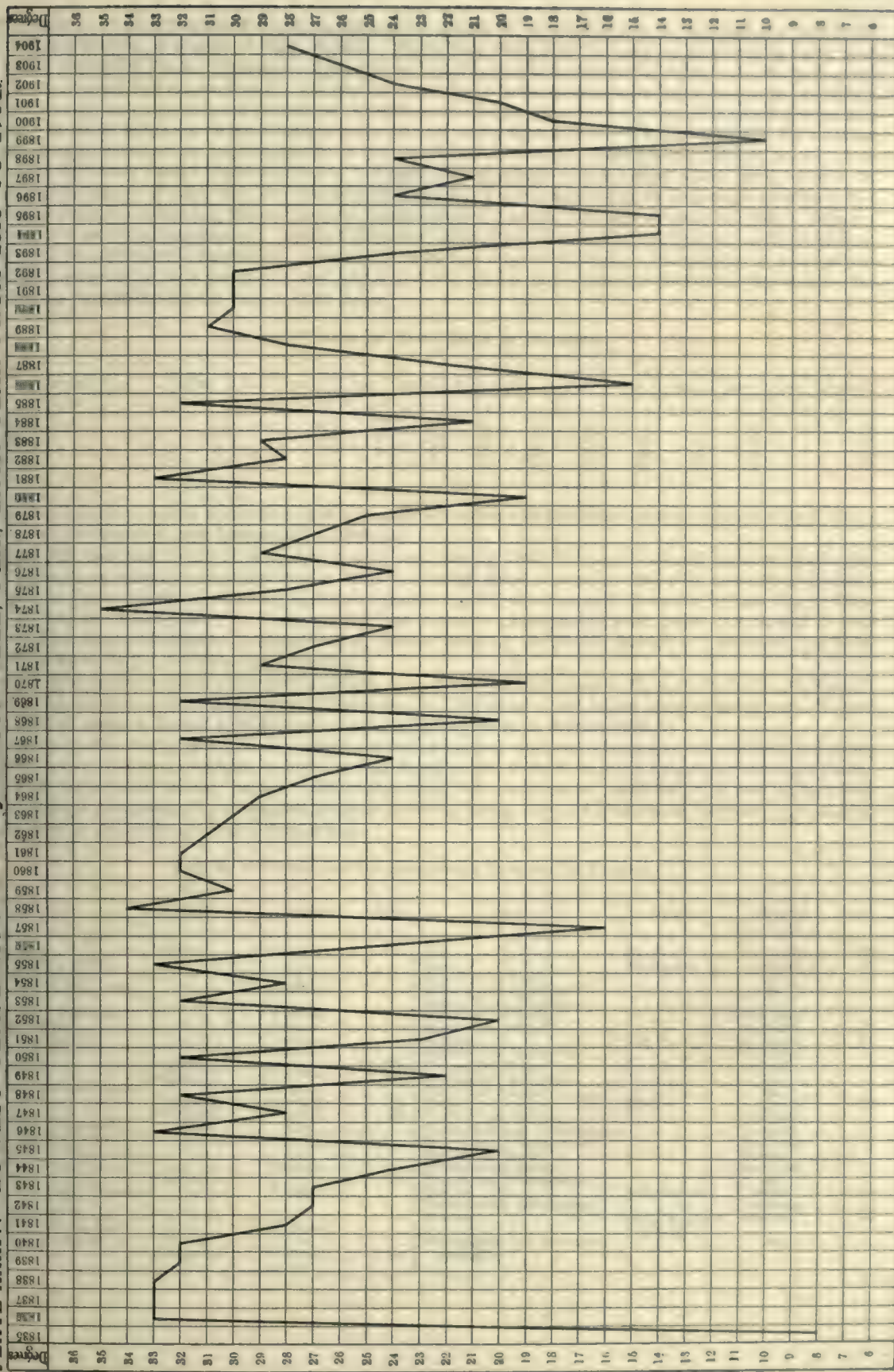
Geographical position.—Florida is the most southerly of the States of the Union; it is situated mainly in longitude 80° to 87° West from Greenwich and between parallels of latitude 25° to 30° North.

Physical features.—The physical features of Florida are pronouncedly dissimilar to those of the other southern States, excepting the lower coast regions of Georgia and the gulf margin of Alabama. While the most elevated portion of the State barely reaches the dignity of a hill, the irregular features of south Georgia characterize, in a general way, the topography of the greater portion of the interior of western and northern counties, and, continuing southward down the interior of the peninsula, form what is designated the "ridge" or "backbone" of the State. To the eastward of this dividing line is a drainage basin the waters of which find their way to the Atlantic Ocean. To the westward of the "ridge" the Gulf receives the drainage. On the east side of the State the St. Johns River is the outlet of major importance; to the westward the Escambia, Apalachicola, Ocklocknee, Suwanee, and Withlachoochee rivers are the avenues to the Gulf. The Kissimmee River drains the east portion of the central peninsula and, emptying into Lake Okeechobee, is no small factor in forming the Everglades. The Caloosahatchee carries off a large surplus of this water into the Gulf. As a rule there is a gradual decline in elevation ranging from 200 to 300 feet in the interior of the northern and western portions of the State to zero at tide water. There are some exceptions, however, to the general rule, there being a large section embracing portions of the counties on or adjacent to the west coast where elevation above sea level exceeds 200 feet. Except near the coast and in the interior of portions on northern and western sections, where general agriculture obtains, the State is well wooded, mostly pine, save in the vicinity of lakes or marsh lands where cypress abounds to some extent. Deforestation, however, is proceeding rapidly.

Climatic features.—Humbolt says the term "climate," in its broadest sense, implies all the changes in the atmosphere which sensibly affect one's physical condition. It is obvious, then, that the factors in the order of relative importance in the study of climate are: Temperature and relative humidity, or the moisture content of the air. Vital statistics show that the longevity of the human race is greater in warm climates than in more rigorous latitudes—a concrete statement indicating that radical temperature changes are conditions adverse to long life.

Temperature.—Although covering a range of 6° in latitude the climate of Florida is generally uniform and, in view of the proximity of large bodies of water, may be termed oceanic. Abnormalities, however, do occur and with favorable pressure the isotherm of freezing weather dips far down the peninsula, and under the most extreme conditions freezing temperatures are limited only by the confines of the mainland. There are some fragmentary, though authentic temperature records previous to 1835. The data are sufficient, however, to show that the history of the severest freezes was recorded with considerable accuracy. About the earliest period to which reference is made to very cold weather in Florida was in January, 1766, when fruit trees were killed in St. Augustine. In 1774, according to Maj. G. R. Fairbanks, Florida historian, a snow storm extended over a large portion of the State, the occasion being referred to by the inhabitants as "an extraordinary white rain." In 1799 the temperature was sufficiently low on April 6 to kill vegetation over the north half of the State. It is generally accepted, however, that the coldest weather ever experienced, so far as authentic records go, was on the 7th of February, 1835, when the temperature in Jacksonville was 7° above zero. The St. Johns River was frozen several rods from the shore and all fruit trees were killed. Subsequently, the following abnormally low temperatures occurred in that city during the years indicated: 1857, 16°; 1868, 20°; 1870, 19°; 1880, 19° on December 30; 1886, 15° on January 12; 1894, 14° on December 29; 1895, 14° on February 8; 1899, 10° on February 13; and 1900, 18° on February 18; records previous to September, 1871, are unofficial. The cold waves in 1886 and 1894, 1895, 1899, and 1900 were very destructive to fruits and vegetables. In 1886 and 1894 practically all citrus fruits were destroyed, and in 1895 and 1899 the trees in the north and north central portions were killed. During the past century there have been at least seven severe freezes in this State, during two of which—1835 and 1899—practically a zero temperature prevailed over the interior of northern and western counties. These marked temperature extremes have stimulated speculation as to climatic changes, the solution of which, however, still lacks a true physical basis. The mean temperature for the State is 70.3°. The warmest month is July, with an average temperature of 81.2°; the coldest is January, with an average of 57.6°. The mean maximum temperature is 79.9°; the mean minimum temperature is 61.1°. The highest temperature recorded during the past twelve years, since the Climate and Crop Service was established, was 107°; the lowest temperature recorded during the same period was -2°. These figures represent also the extremes of temperature, so far as authentic records go, from the time Florida was a foreign province to the present day. It is a fact worthy of note that while January, upon the average, is the coldest month, the greatest disasters resulting from severe cold waves occurred during December and February. Adverting to maximum temperatures, and by way of correcting the opinion of some who believe extreme heat is dependent on latitude, it may be well to point out that there are stations in the southeast portion of the State where maximum temperatures have never exceeded 94°.

PLATE XXXIV. LOWEST TEMPERATURE AT JACKSONVILLE, FLA., EACH YEAR FROM 1835 TO 1904.



Precipitation.—Precipitation results during the summer mainly from the operation of heat and moisture, the lower layers of air becoming unstable as a result of solar radiation. Winter rains result from the eastward movement of storm areas which usually originate in Texas. The amount of precipitation and the area affected thereby are dependent upon the intensity of the disturbances and their eastward track. The total annual rainfall at some stations occasionally shows marked variations, due to the number, near approach, and intensity of cyclonic storms during summer and autumn. The annual precipitation is greatest—about 60 inches—on the Gulf borders of the extreme west portion and over a limited section of the southeast peninsula—mainly Dade and the southern portion of Brevard County. It is least in the extreme southern portion of the State, where the normal rainfall is about 35 inches. Comparatively speaking, there is a rainy season and dry season, the former beginning usually in June, when the average rainfall is about 7 inches, and ending, on an average, with September. Precipitation diminishes in October, followed by seven comparatively dry months, although February and March indicate a second period of maximum precipitation. April and November are the driest months, with July, August, and September the wettest. The greatest monthly rainfall ever recorded—31.26 inches—occurred in August. Precipitation is heaviest over the western portion of the State during July and August and over central and southern sections during September. The annual average precipitation for the State is 54.53 inches.

AVERAGE NUMBER OF RAINY DAYS BY DISTRICTS.

District.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Western.....	11	11	10	6	7	10	15	14	9	6	7	10	116
Northern.....	8	9	8	7	10	14	15	15	14	9	8	7	125
Central.....	8	7	7	6	8	18	18	20	19	9	6	7	133
Southern.....	8	7	5	4	8	12	13	15	16	12	8	7	115

Rain-bearing winds.—During winter the rain-bearing winds are northeast and southeast; during spring, southwest; during summer, south and southwest, and during autumn, northeast.

Snow.—The years and months of snowfall were as follows: January, 1895; February, 1899, and December, 1901. The sections visited were mainly northern and western districts, although traces occurred in 1894, 1895, and 1899 as far south as Tampa. In February, 1895, the following maximum amounts in inches were measured: Pensacola, 3; Lake City, 1; Tallahassee, 2; Jacksonville had trace. In February, 1899, the maximum measurements were: Archer, 1.5; Jasper, 2; Lake Butler, 4; Lake City, 3; Macclenny, 1; Gainesville, 1; Tarpon Springs, 1; De Funiak Springs, 1.5; Haywood, 3.5; Tallahassee, 1; Jacksonville, 1.9, and Pensacola, 2.1 inches.

Frosts.—The dates of earliest killing frost of autumn were: Western district, October 27; northern district, October 24; central district, November 18; southern district, November 18. The dates of last killing frosts of spring were: Western district, April 6; northern district, April 16; central district, April 7; southern district, April 7.

Prevailing winds.—During spring from the southeast; during summer, southwest; during autumn, northeast, and during winter, northeast. The wind circulation over the most southerly portion of the State shows a constancy somewhat characteristic of the trade winds—the only portion of the country where such conditions are manifested on or near the mainland.

Miscellaneous phenomena.—Thunderstorms are most numerous during July and least during December and January. Hail is infrequent, and rarely sufficient to damage crops.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS IN FLORIDA.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Alachua.....	Archer.....	Northern.....	353	Lee.....	Myers.....	Southern.....	359
Baker (see Jacksonville).....	.....	do.....	.....	Leon.....	Tallahassee.....	Northern.....	351
Bradford (see Archer).....	.....	do.....	.....	Levy (see Archer).....	.....	do.....	.....
Brevard (see Jupiter; New Smyrna).....	.....	Central.....	.....	Liberty (see Tallahassee).....	.....	do.....	.....
Calhoun (see Tallahassee).....	.....	Western.....	.....	Madison (see Tallahassee).....	.....	do.....	.....
Citrus (see Eustis).....	.....	Central.....	.....	Manatee (see Tampa).....	.....	Southern.....	.....
Clay (see Jacksonville).....	.....	Northern.....	.....	Marion (see Archer).....	.....	Central.....	.....
Columbia (see Archer).....	.....	do.....	.....	Monroe.....	Key West.....	Southern.....	361
Dade.....	Jupiter.....	do.....	.....	Nassau (see Jacksonville).....	.....	Northern.....	.....
De Soto (see Bartow; Myers).....	Miami.....	Southern.....	358	Orange (see Eustis).....	.....	Central.....	.....
Duval.....	.....	do.....	360	Osceola (see Bartow).....	.....	do.....	.....
Escambia.....	Jacksonville.....	Northern.....	352	Pasco (see Tampa).....	.....	do.....	.....
Franklin (see Tallahassee).....	Pensacola.....	Western.....	350	Polk.....	Bartow.....	do.....	357
Gadsden (see Tallahassee).....	.....	do.....	.....	Putnam (see Archer).....	.....	Northern.....	.....
Hamilton (see Tallahassee).....	.....	do.....	.....	Santa Rosa (see Pensacola).....	.....	Western.....	.....
Hernando (see Tampa).....	.....	Northern.....	.....	St. John (see Jacksonville).....	.....	Northern.....	.....
Hillsboro.....	.....	do.....	.....	Sumter (see Lake).....	.....	Central.....	.....
Holmes (see De Funiak Springs).....	Tampa.....	Central.....	356	Suwanee (see Archer).....	.....	Northern.....	.....
Jackson (see Tallahassee).....	.....	do.....	.....	Taylor (see Tallahassee).....	.....	do.....	.....
Jefferson (see Tallahassee).....	.....	Western.....	.....	Volusia.....	New Smyrna.....	Central.....	355
Lafayette (see Archer).....	.....	do.....	.....	Wakulla (see Tallahassee).....	.....	Northern.....	.....
Lake.....	Eustis.....	Central.....	354	Walton.....	De Funiak Springs.....	Western.....	349
				Washington (see De Funiak Springs).....	.....	do.....	.....

STATE SUMMARY.

Station.	Num-ber.	Temperature.							Average num-ber days with—	
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absol-ute maxi-mum.	Date.	Absol-ute mini-mum.	Date.		
		° F.	° F.	° F.	° F.		° F.		Maxi-mum above 90°.	Mini-mum below 32°.
De Funiak Springs.....	1	67	78	55	105	July, 1901.....	0	February, 1899.....	73	25
Pensacola.....	2	68	75	61	103	.....do.....	7	.....do.....	78	8
Tallahassee.....	3	67	76	58	97	July, 1897.....	- 2	.....do.....	31	13
Jacksonville.....	4	69	78	61	104	July, 1879.....	10	.....do.....	48	5
Archer.....	5	69	81	58	101	July, 1902.....	10	.....do.....	80	13
Eustis.....	6	72	82	61	104	.....do.....	16	February, 1895.....	84	5
New Smyrna.....	7	70	78	■	100	August, 1900.....	16	February, 1899.....	19	6
Tampa.....	8	72	80	63	96	July, 1902.....	19	December, 1894.....	48	4
Bartow.....	9	72	82	62	100	July, 1898.....	18	January, 1898.....	69	5
Jupiter.....	10	74	80	67	96	August, 1902.....	24	December, 1894.....	7	0
Myers.....	11	73	81	64	94	July, 1902.....	24	.....do.....	18	0
Miami.....	12	75	83	68	96	May, 1902.....	29	February, 1899.....	34	0
Key West.....	13	77	82	73	100	July, 1886.....	41	January, 1886.....	26	0

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
De Funiak Springs.....	1	Nov. 21	Mar. 13	Oct. 27	Mar. 29	Inches. 67.8	Inches. 14.2	Inches. 24.9	Inches. 12.8	Inches. 15.9
Pensacola.....	2	Dec. 5	Feb. 23	Nov. 12	Apr. 6	56.8	11.8	19.8	12.6	12.6
Tallahassee.....	3	Dec. 8	Mar. 4	Nov. 4	Mar. 28	58.2	12.2	21.9	11.7	12.4
Jacksonville.....	4	Dec. 6	Feb. 19	Nov. 12	Apr. 6	53.4	10.4	17.9	15.7	8.4
Archer.....	5	Nov. 28	Mar. 9	Oct. 24	Apr. 16	54.0	10.7	22.8	11.0	10.4
Eustis.....	6	Dec. 28	Feb. 18	Nov. 28	Feb. 24	49.6	8.0	19.8	12.8	9.0
New Smyrna.....	7	Dec. 24	Feb. 17	.....do.....	Mar. 18	51.1	6.8	17.4	18.5	8.4
Tampa.....	8	Jan. 9	Feb. 8	.....do.....	Mar. 19	53.1	7.4	24.9	12.7	8.1
Bartow.....	9	Dec. 21	Feb. 16	Nov. 18	Mar. 17	54.5	7.7	24.6	13.1	9.1
Jupiter.....	10	Dec. 29	Feb. 14	.....do.....	Apr. 7	58.7	10.9	16.6	21.9	9.3
Myers.....	11	.....	.....	Dec. 21	Feb. 14	55.1	8.5	27.2	12.3	7.1
Miami.....	12	.....	.....	.....	Feb. 19	58.3	11.1	20.6	18.5	8.1
Key West.....	13	(a)	(a)	.....	.....	37.9	5.5	12.6	14.5	5.3

a None.

FLORIDA.

Western District: WALTON COUNTY. Station: DE FUNIAK SPRINGS.

J. T. STUBBS, Observer.

[Established by U. S. Weather Bureau in October, 1896. Latitude, 30° 42' N. Longitude, 86° 2' W. Elevation, 193 feet.]

This station is near the southwestern limits of the town of De Funia Springs. It is 300 feet above the sea level and 20 miles from the Gulf of Mexico. The immediate surroundings of the station are open, giving a free circulation of air. There is a gradual slope southward toward the Gulf, although the general topographic features of the country are flat, with an occasional lake in the lowlands. Maximum and minimum thermometers are exposed in a standard shelter, painted white, which is located 60 feet south of the observer's residence, with the door opening toward the north. The thermometers rest on a horizontal support which runs from each side of and near the back of the shelter, and are 5 feet above the ground. The bottom of the rain gage is 3 feet above ground and 20 feet north of the instrument shelter. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 1, 1896, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.				
	Mean.	Mean of the maxima.	Absolute maxima.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Greatest depth of snow in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	Inches.		Inches.	Inches.	Inches.	
December.....	51	62	79	39	12	53	50	4.1	7	3.2	7.2	0	
January.....	51	63	79	40	15	56	49	3.4	8	2.1	2.3	0	
February.....	52	64	82	41	0	57	49	8.4	9	12.2	12.6	1.5	
Winter mean.....	51	63		40				15.9	24	15.5	22.1	0	
March.....	62	73	86	51	22	66	57	7.7	10	7.8	8.6	0	
April.....	65	77	94	52	33	68	61	2.7	4	4.5	3.9	0	
May.....	74	87	98	61	42	77	71	3.8	7	1.2	4.6	0	
Spring mean.....	67	79		55				14.2	21	13.5	17.1	0	
June.....	80	91	103	69	55	82	76	6.4	11	7.0	12.0	0	
July.....	81	91	105	70	60	82	79	7.3	15	4.0	10.4	0	
August.....	81	91	102	70	64	83	78	11.2	16	12.4	0.9	0	
Summer mean.....	81	91		70				24.9	42	23.4	23.3	0	
September.....	77	88	99	66	45	80	76	4.8	6	1.9	5.2	0	
October.....	68	80	95	57	30	73	65	3.6	6	2.2	4.8	0	
November.....	59	71	85	47	21	62	54	4.4	6	2.0	2.6	0	
Fall mean.....	68	79		57				12.8	18	6.1	12.6	0	
Annual mean.....	67	78	105	55	0			67.8	105	60.5	75.1	1.5	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1897	Jan. 27, 29.....	June 10, 11, 18-22, 25, 26, 29, 30; July 2, 30, 31; Aug. 1-3, 28; Sept. 3.	1901	Feb. 24; Mar. 7; Dec. 15-18, 20-22.	June 16-18, 22, 23, 25-27; July 1, 10, 11, 13, 14, 22, 30; Aug. 2, 11, 26.
1898	Jan. 1, 2; Feb. 1, 3; Dec. 11.	May 23-28; June 4, 5, 7, 8, 30; July 1, 20-22; Aug. 22.	1902	Jan. 13, 14; Dec. 27, 28.	May 4, 21, 26; June 4, 5, 8-11, 13, 16, 17, 20, 30; July 1-8, 10, 11, 19; Aug. 5, 14, 15, 18-23.
1899	Feb. 8, 9, 12-14.....	May 4, 9, 10, 18-20, 31; June 2-4, 8, 14-16, 19-22, 30; July 9, 14-19, 29-31; Aug. 5-14, 25, 26; Sept. 1, 3-7, 10, 11, 14.	1903	Jan. 9, 13; Feb. 18; Nov. 29.	July 6, 21, 23, 24; Aug. 25, 28, 29; Sept. 5-7, 12.
1900	Jan. 2-4, 30; Feb. 1, 2, 18, 19.	July 2, 7, 8, 31; Aug. 9-23, 25, 29; Sept. 1, 2, 4, 5, 11, 16-18, 23-25, 29, 30; Oct. 1.			

FLORIDA.

West Florida: ESCAMBIA COUNTY. Station: PENSACOLA.

B. BUNNEMEYER, Observer.

[Established by Signal Service in October, 1879. Latitude, 30° 25' N. Longitude, 87° 13' W. Elevation, 12 feet.]

This station is located in the business center of the city of Pensacola, occupying office rooms since April 1, 1888, on the third floor of the Government building. Previous to that date the station occupied offices in a 2-story building, one block directly south of its present location.

The city of Pensacola is separated from the Gulf of Mexico by Pensacola Bay, which forms a harbor of perhaps 5 or more miles in width. The surrounding country is flat and well wooded.

All thermometers, thermograph, sunshine recorder, rain gages, anemometer, and wind vane are exposed on the roof of the Government building. The instrument shelter, 8 feet above the roof, contains maximum and minimum thermometers and dry and wet bulb thermometers.

The entire record, twenty-four years, November 1, 1879, to December 31, 1903, has been used for all temperature and precipitation data, except for snowfall, which covers eighteen years, from 1886 to 1903, inclusive.

The mean 8 a. m. humidity covers a period of fifteen years and six months, from July 1, 1888, to January 1, 1904, and the mean 8 p. m. a period of ten years and ten months, from July 1, 1888, to May 1, 1899.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Average number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	54	62	76	46	14	62	50	4.0	10	2.9	10.8	0.0	0.5	P. ct. 82	Gr. s. 3.34	77	4.00	N.	
January.....	52	60	79	45	15	63	46	4.0	11	4.2	7.5	0.1	1.0	81	3.08	78	3.65	N.	
February.....	56	63	78	49	7	63	45	4.6	11	3.4	9.0	0.3	3.0	81	3.42	79	4.10	NE.	
Winter mean.....	54	62		47				12.6	32	10.5	7.3	0.4		81	3.28	78	3.92	N.	
March.....	60	67	83	54	25	66	55	5.7	10	6.9	3.8	0.0	0.0	81	4.20	78	4.79	SE.	
April.....	67	74	92	60	34	71	63	3.2	6	1.6	4.5	0.0	0.0	78	5.29	75	5.61	SW.	
May.....	74	81	93	67	44	77	71	2.5	7	2.2	1.4	0.0	0.0	75	6.38	73	6.62	SW.	
Spring mean.....	67	74		60				11.3	23	10.7	9.7	0.0		78	5.29	75	5.67	SW.	
June.....	80	86	101	74	55	82	76	5.2	10	2.6	4.3	0.0	0.0	79	8.12	76	8.06	SW.	
July.....	81	88	103	75	64	83	79	6.7	15	5.6	5.6	0.0	0.0	81	8.86	77	8.68	SW.	
August.....	81	88	97	74	62	83	79	7.9	14	0.7	18.5	0.0	0.0	82	8.69	78	8.79	SW.	
Summer mean.....	81	87		74				19.8	39	8.9	28.4	0.0		81	8.56	77	8.51	SW.	
September.....	78	85	95	71	54	81	76	4.8	9	1.5	8.5	0.0	0.0	80	7.48	74	7.84	NE.	
October.....	70	77	95	62	38	75	65	3.8	6	0.0	4.9	0.0	0.0	76	5.15	69	5.51	NE.	
November.....	60	68	81	52	28	64	56	4.0	7	3.9	7.3	0.0	0.0	79	3.96	74	4.54	NE.	
Fall mean.....	69	77		62				12.6	22	5.4	20.7	0.0		78	5.53	72	5.96	NE.	
Annual mean.....	68	75	103	61	7			56.8	116	35.5	86.1	0.4	3.0	80	5.66	76	6.02	SW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 29.....	June 29, 30.	1899	Feb. 8, 12-14.....	June 16 22; July 31; Sept. 11.
1895	Jan. 13; Feb. 7-9.....	None.	1900	Feb. 17, 18.....	Aug. 20, 21; Sept. 16.
1896	Jan. 5.....	July 31; Aug. 5.	1901	Dec. 15, 16, 18, 20, 21.....	June 17, 18; July 12, 13.
1897	Jan. 27, 28.....	June 19, 21; Aug. 2, 3.	1902	None.....	June 15; Aug. 17, 23.
1898	Jan. 2.....	July 21, 22.	1903	do.....	July 22.

FLORIDA.

Northern District: LEON COUNTY. Station: TALLAHASSEE.

W. H. MARKHAM, Observer.

[Established by Rev. W. H. Carter in March, 1883. Latitude, 30° 27' N. Longitude, 84° 16' W. Elevation, 200 feet.]

This station is near the center of the town of Tallahassee and about 21 miles from the Gulf of Mexico. The surrounding country is open, the fields being generally under cultivation. The land is mostly hilly. The elevation of the hills in this section ranges from 100 to 200 feet, gradually diminishing and terminating in the flat pine woods as the Gulf is approached. The instrument shelter is a standard one, painted white, and is exposed on the north side of and about 40 feet from the building. The maximum and minimum thermometers in the shelter are 4 feet above the ground. The rain gage is in the open, well exposed, with the bottom 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Greatest depth of snow in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	53	62	80	44	12	59	49	4.1	6	3.0	4.6	0.0	N.
January.....	52	60	81	42	19	60	44	3.5	6	2.2	2.4	0.0	N.
February.....	55	63	80	44	-2	68	45	4.8	8	2.4	6.7	2.0	W.
Winter mean.....	53	62		43				12.4	20	7.6	13.7		N.
March.....	60	71	87	51	25	66	56	5.9	7	6.1	6.7	0.0	S.
April.....	67	77	90	56	38	71	62	2.7	4	2.2	4.0	0.0	S.
May.....	75	85	96	64	45	78	72	3.6	6	0.9	2.1	0.0	S.
Spring mean.....	67	78		57				12.2	17	9.2	12.8		S.
June.....	79	88	97	70	54	82	76	6.8	10	10.5	16.5	0.0	S.
July.....	80	88	97	72	57	83	78	8.0	15	5.4	10.3	0.0	S.
August.....	80	88	96	72	61	82	78	7.1	13	7.3	3.9	0.0	SE
Summer mean.....	80	88		71				21.9	38	23.2	30.7		S.
September.....	77	85	95	69	52	82	74	5.1	7	1.0	4.8	0.0	NE
October.....	68	76	92	60	35	72	65	3.7	4	1.0	5.5	0.0	NE
November.....	59	68	83	50	27	64	55	2.9	5	2.9	1.5	0.0	E.
Fall mean.....	68	76		60				11.7	16	4.9	11.8		NE
Annual mean.....	67	76	97	58	-2			58.2	91	44.9	69.0	2.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 29; record incomplete.	June 29.	1899	Feb. 12-14	June 16; July 14-18.
1895	Jan. 1; Feb. 7-9.	None.	1900	Jan. 3; Feb. 18.	None.
1896	Jan. 5.	Do.	1901	Dec. 18, 21.	July 12, 13.
1897	Jan. 28, 29.	June 3, 12, 14, 15, 19, 23-26, 28-30; July 1, 2; Aug. 2.	1902	Dec. 27.	June 5, 30; July 1-3 11-13.
1898	Jan. 2.	May 22, 23, 27; June 13, 28-30; July 20, 22; Sept. 1, 19.	1903	None.	None.

FLORIDA.

Northern District: DUVAL COUNTY. Station: JACKSONVILLE.

A. J. MITCHELL, Section Director.

{Established by Signal Service, U. S. Army, September, 1871. Latitude, 30° 20' N. Longitude, 81° 39' W. Elevation, 7 feet.}

The station is located in the business portion of the city. The office was first located in the National Hall Building, corner of Pine and Forsyth streets, where it remained until 1880, when it was removed to the Astor Building, corner of Bay and Hogan streets.

On August 1, 1902, a second removal was made to the newly constructed Dyal-Upchurch Building, corner of Bay and Main streets—just two blocks east of its previous location.

Jacksonville is located on the north side of the St. Johns River and 18 miles from the Atlantic Ocean. The country surrounding Jacksonville is generally flat; the most elevated portion of the city probably does not exceed 25 feet above mean tide water.

The thermometers and rain gage are exposed on the roof of the building. The elevations of the instruments above ground are: Thermometers, 100.6 feet; rain gage, 87.9 feet; anemometer cups, 128.2 feet; wind vane, 126.8 feet; top of gage above roof, 3.3 feet.

Tabulated data are from the following periods of observation: Mean maximum and mean minimum temperatures, thirty years; humidity, fifteen years; sunshine, six years; Remainder of data is from the full period of observation, thirty-two years, September 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	56	65	81	47	14	63	49	3.0	8	2.4	7.8	0	0	86	3.76	79	4.10	162	50	N. ^a
January.....	55	64	81	46	15	63	49	3.0	10	4.0	7.2	0	0	84	3.31	75	3.64	161	50	N.E.
February.....	58	67	80	49	10	66	48	3.4	9	3.4	5.2	0	1.9	83	3.50	73	3.92	165	53	N.E.
Winter mean.....	56	65	81	47	14	63	49	9.4	27	9.8	20.2	0	.....	84	3.52	76	3.89	163	51	N.E.
March.....	63	72	88	54	26	69	58	3.5	8	1.4	5.7	0	0	81	4.20	71	4.36	241	65	SW.
April.....	68	78	92	59	34	73	63	2.9	7	3.2	1.2	0	0	77	5.05	69	5.16	294	76	N.E.
May.....	75	84	98	66	46	78	72	4.0	9	1.9	7.7	0	0	77	6.34	71	6.44	308	73	N.E. ^b
Spring mean.....	69	78	92	60	34	73	72	10.4	24	6.5	14.6	0	.....	78	5.20	70	5.32	281	71	N.E.
June.....	80	89	101	72	54	83	77	5.5	13	4.5	9.0	0	0	80	7.97	78	8.02	276	66	SW.
July.....	82	91	104	74	66	85	80	6.2	15	6.1	7.2	0	0	81	8.59	77	8.42	264	61	SW.
August.....	82	90	101	74	64	84	79	6.2	14	3.9	7.6	0	0	83	8.53	80	8.48	262	64	SW. ^b
Summer mean.....	81	90	101	73	64	84	79	17.9	42	14.5	23.8	0	.....	81	8.36	78	8.31	267	64	SW.
September.....	78	86	98	71	49	81	76	8.1	14	5.1	19.6	0	0	85	7.95	82	7.92	198	53	N.E.
October.....	71	78	92	63	40	76	65	5.1	10	2.7	3.4	0	0	84	5.89	79	6.30	183	52	N.E.
November.....	62	71	86	54	26	67	56	2.5	8	0.1	0.5	0	0	85	4.41	79	4.85	167	52	N.E.
Fall mean.....	70	78	92	63	40	76	65	15.7	32	7.9	23.5	0	.....	85	6.08	80	6.36	183	52	N.E.
Annual mean.....	69	78	92	61	40	76	65	53.4	125	38.7	82.1	0	1.9	82	5.79	76	5.97	223	60	N.E.

a Also N. e.

b Also S. e.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 29, 30.	May 31; Aug. 10, 11, 16, 17, 20, 27; Sept. 10.	1899	Feb. 13, 14.	May 12, 18, 21; June 14-16; July 14, 15, 18, 28, 29; Aug. 4-8, 11.
1895	Feb. 8, 9.	June 22, 23, 25; July 9; Aug. 19, 20, 23, 25, 27, 30.	1900	Feb. 18.	July 6, 7; Aug. 9, 11-14, 17-22; Sept. 28.
1896	None.	May 31; June 1, 26; July 25-31; Aug. 2-4, 9-11, 14, 18, 24, 25; Sept. 17.	1901	Dec. 21.	July 12, 31.
1897	Jan. 28, 29.	June 12-18, 20, 21, 23-30; July 1-4, 23, 26; Aug. 1, 2, 6, 19, 28, 29.	1902	None.	June 27-30; July 1-7, 11, 18, 30; Aug. 15, 20-22.
1898	None.	May 28-30; June 13, 14, 17, 18, 25, 26, 28-30; July 17-21, 23.	1903	do.	July 23; Aug. 27-29.

FLORIDA.

Northern District: ALACHUA COUNTY. Station: ARCHER.

W. C. ANDRUSS, Observer.

[Established by J. C. Neal, M. D., in June, 1883. Latitude, 29° 30' N. Longitude, 82° 28' W. Elevation, 92 feet.]

This station is located near the eastern edge of the town of Archer and about one-half mile from the "sand hills." These hills extend 6 or 7 miles west and are 50 to 100 feet high. North, south, and east of the station the country is rolling and pine timbered, with sparsely scattered farms. The shelter is a standard one and is located about 20 feet north of the observer's residence. The thermometers are 6 feet above the ground. Twenty feet removed from the shelter is the rain gage, the bottom of which is 2 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

Tabulated data, obtained from the maximum and the minimum thermometer, are for the period of observation, 1893-1903; the remainder of the data for 1884-1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	57	68	89	45	13	63	40	3.3	7	1.6	5.6			NE.
January.....	55	67	84	43	17	65	40	3.2	7	5.0	8.2			SW.
February.....	59	69	90	46	10	66	51	3.9	9	3.8	6.9		1.5	NW.
Winter mean.....	57	68		45				10.4	23	10.4	20.7			NE.
March.....	63	78	94	52	24	71	55	4.1	7	1.8	3.8			SW.
April.....	68	82	94	55	33	71	62	2.7	5	2.0	0.3			SW.
May.....	75	89	101	63	46	80	68	3.9	7	0.8	6.6			SW.
Spring mean.....	69	83		57				10.7	19	3.6	10.7			SW.
June.....	80	91	101	68	55	82	78	7.1	13	7.2	11.4			SW.
July.....	81	92	101	72	59	84		8.4	17	6.4	5.9			SW.
August.....	82	91	99	71	59	86	79	7.3	17	7.8	10.2			SW.
Summer mean.....	81	91		70				22.8	47	21.4	27.5			SW.
September.....	79	88	98	69	48	82	76	6.1	13	3.6	11.6			NE.
October.....	71	83	94	61	32	76	68	2.6	5	2.0	4.8			NE.
November.....	63	75	88	52	20	69	56	2.3	6	0.6	1.4			NE.
Fall mean.....	71	82		61				11.0	24	6.2	17.8			NE.
Annual mean.....	69	81	101	58	10			54.9	113	41.6	78.7		1.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1895	Jan. 1, 2, 13, 14, 23; Feb. 8-10, 13, 17, 18, 28; Dec. 4-7, 14-16, 20.	May 28; June 5, 21-23, 25; July 2; Aug. 20, 30; Sept. 27.	1901	Jan. 19, 20, 26; Feb. 2, 21, 22, 24, 25; Mar. 7, 17; Nov. 16-18, 28, 29; Dec. 1, 17-19, 21-23, 31.	May 4, 5, 25; June 24-26, 29, 30; July 1, 15, 31.
1896	Jan. 2, 4-6; Feb. 18, 19, 22; Dec. 22, 25.	May 24, 27, 31; June 26, 27; July 22-26, 28, 29; Aug. 4, 8-13, 17, 18, 25; Sept. 17, 18, 20.	1902	Jan. 1, 7, 13, 15, 18, 23; Feb. 10-12, 18, 19; Dec. 25, 27, 28.	May 4-26; June 5, 8-12, 20, 26-30; July 1-12, 20; Aug. 20-22.
1897	Jan. 6-10, 28-30; Dec. 7, 8.	June 1, 2, 15-17, 20, 21, 23-25, 28-30; July 1, 2; Aug. 2, 5, 6, 19, 28.	1903	Jan. 7, 9, 13; Feb. 18; Nov. 19, 27, 28, 30; Dec. 1, 3, 4, 7, 8, 10-12, 17, 18, 21-23, 27-29, 31.	May 25, 26; July 6, 20, 21; Aug. 25
1898	Jan. 2, 4; Feb. 2, 4, 22, 23; Dec. 6, 7, 11, 12, 27, 28.	May 4, 5, 18-20, 24, 25, 27-30; June 1, 3, 4, 10-12, 15-19, 22, 23, 25, 27-30; July 1, 2, 17-22.			
1899	Feb. 9, 13-15; Mar. 8, 9; Dec. 5, 30.	May 6, 10-13, 16-23, 30, 31; June 1, 3, 8-15, 16, 22; July 14-18, 28, 29; Aug. 3-6, 11, 12, 25, 26; Sept. 5.			
1900	Jan. 2-4, 14, 30; Feb. 1, 5, 18-20, 26; Nov. 10, 13, 31; Dec. 9, 12.	June 4, 14, 27; July 1, 5, 6, 8, 10, 11, 13, 15, 17, 19, 21-26; Aug. 10, 11, 17-22, 28-30.			

FLORIDA.

Central District: LAKE COUNTY. Station: EUSTIS.

A. L. BROWN, Observer.

[Established by Signal Service in November, 1890. Latitude, 28° 50' N. Longitude, 81° 40' W. Elevation, 180 feet.]

This station is near the center of the town of Eustis, four blocks from Lake Eustis, and 40 feet above its level. The surrounding country is open and interspersed with numerous large lakes. The instrument shelter is a standard one and so located as to have a free circulation of air at all times. The thermometers are 5 feet above the ground. The shelter is 45 feet south of the observer's house. The rain gage is 15 feet southwest of the instrument shelter, the top being 4 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

Tabulated data are for about thirteen years, November 1, 1890, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	
December	60	70	84	50	16	63	55	In. 2.2	7	In. 3.1	In. 1.3	In. 0.0	NE.
January	58	69	86	48	23	63	52	3.1	8	3.3	5.2	0.0	NE.
February	61	71	88	50	16	68	54	3.7	8	1.0	9.6	0.0	NW.
Winter mean	60	70		49				9.0	23	7.4	16.1	0.0	NE.
March	67	77	92	54	28	72	63	2.9	7	1.2	1.2	0.0	NE.
April	70	82	93	59	40	73	66	2.0	5	1.7	4.2	0.0	NE.
May	77	89	100	56	51	80	74	3.1	7	2.3	0.8	0.0	E.
Spring mean	71	83		60				8.0	19	5.2	6.2	0.0	NE.
June	81	91	103	71	61	83	79	6.4	13	5.7	7.2	0.0	E.
July	83	92	104	74	65	85	81	6.9	16	2.8	13.6	0.0	SW.
August	83	92	101	73	63	85	81	6.5	16	9.0	6.0	0.0	E.
Summer mean	82	92		73				19.8	45	17.5	26.8	0.0	E.
September	80	89	98	72	52	82	76	8.0	15	8.1	6.2	0.0	NE.
October	73	83	95	64	42	78	68	3.2	9	1.9	3.2	0.0	NE.
November	66	76	91	56	26	71	61	1.6	7	1.7	0.4	0.0	NE.
Fall mean	73	83		64				12.8	31	11.7	9.8	0.0	NE.
Annual mean	72	82	104	61	16			20.6	118	41.8	58.9	0.0	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Dec. 28-30.	May 30; June 5, 29; July 14, 30.	1900	Jan. 2-4; Feb. 2, 18...	June 4, 6, 25-27, 29; July 1, 2, 5-8, 10, 14, 22, 23, 25; Aug. 1, 9, 10-21, 24-26, 28-31; Sept. 13, 14, 17, 18, 22-24, 28-30.
1895	Jan. 1; Feb. 8-10, 14; Dec. 6, 14, 31.	May 16, 17, 19, 20, 25, 27-31; June 7, 8, 15, 16, 21-25, 30; July 2, 10, 13; Aug. 19, 20, 23-25, 28.	1901	Feb. 24; Mar. 7; Dec. 18, 19, 21, 22.	May 3-5, 15, 23, 25; June 24, 25, 27, 29; July 9, 11-15, 17, 24, 26, 31; Aug. 7-9, 23; Sept. 2, 11-14.
1896	Jan. 5, 6; Feb. 18, 22.	May 31; June 1, 24, 26, 27; July 22, 26, 28-31; Aug. 4, 7-14, 16-19.	1902	Jan. 13, 14, 23; Dec. 27, 28.	Apr. 20, 30; May 4, 19, 26, 28; June 17, 19-22, 25-30; July 1-18, 21, 29, 30; Aug. 3, 10-16, 19-24; Sept. 4; Oct. 2, 3, 14.
1897	Jan. 7, 28, 29.	May 22, 23; June 2, 13-15, 18, 20, 23, 24, 27-29; July 1, 2; Aug. 13, 16, 17, 19.	1903	Jan. 9, 13; Feb. 18; Nov. 28; Dec. 27.	May 24-26; June 17, 19-21; July 18-24, 31; Aug. 11-15, 22-29; Sept. 2.
1898	Jan. 2, 3; Feb. 2; Dec. 12.	May 3-5, 19-21, 24-31; June 10-12, 14-16, 23-30; July 1, 16-23, 27-31; Aug. 4, 10, 12, 31; Sept. 23.			
1899	Feb. 9, 13-15; Mar. 8; Dec. 30.	May 10-14, 17-22, 31; June 1-3, 6-16; July 15, 19, 29; Aug. 3-6, 10, 23-25.			

FLORIDA.

Central District: VOLUSIA COUNTY. Station: NEW SMYRNA.

R. B. F. ROPER, Observer.

[Established by United States Weather Bureau in 1892. Latitude, 29° 02' N. Longitude, 80° 37' W. Elevation, 20 feet.]

This station is located in the central portion of the town of New Smyrna, about 1,200 feet west and north of the Indian River, and 3½ miles southwest of Mosquito Inlet and the light-house. It is also something more than a mile from the ocean beach. The land rises rather abruptly from the river to a level of 15 feet. The general character of the country is flat with pine timber dominating, although there is no dense growth. The instrument shelter is 75 feet west of the residence of the observer and has a free circulation of air at all times.

The rain gage is 25 feet east of the shelter. The bottom of the gage is 1 foot above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	58	68	83	49	17	62	54	2.0	4	1.4	3.5	0.0	0.0	NE.
January.....	57	67	82	47	21	61	52	2.8	5	1.4	4.3	0.0	0.0	NE.
February.....	59	69	87	48	16	64	51	3.6	6	2.3	9.1	0.0	T.	NE.
Winter mean.....	58	68		48				8.4	15	5.1	16.9	0.0		NE.
March.....	65	75	91	55	30	70	61	2.6	5	2.4	3.0	0.0	0.0	SE.
April.....	67	78	92	57	39	70	64	1.6	3	4.4	3.1	0.0	0.0	NE.
May.....	73	83	97	63	48	76	70	2.6	5	5.0	1.0	0.0	0.0	SE.
Spring mean.....	68	79		58				6.8	13	11.8	7.1	0.0		SE.
June.....	78	86	99	69	55	80	75	6.2	8	5.2	2.9	0.0	0.0	SE.
July.....	80	88	98	71	64	81	78	5.6	8	5.4	8.6	0.0	0.0	SE.
August.....	80	88	100	72	65	81	79	5.6	8	4.6	7.0	0.0	0.0	SE.
Summer mean.....	79	87		71				17.4	24	15.2	18.5	0.0		SE.
September.....	78	85	94	71	52	80	77	9.2	10			0.0	0.0	NE.
October.....	73	80	94	66	42	76	71	6.7	8	3.6	14.9	0.0	0.0	NE.
November.....	66	70	85	57	30	71	62	2.6	5	2.8	T.	0.0	0.0	E.
Fall mean.....	72	78		65				18.5	23	6.4	14.9	0.0		NE.
Annual mean.....	70	78	100	60	16			51.1	75	38.5	57.4	0.0	T.	NE.

a For 11 months only.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	None.....	None.	1900	Jan. 2-4, 30, 31; Feb. 2, 3, 18-20, 26.	May 11; Aug. 20, 21.
1895	Feb. 8-11, 14, 18; Dec. 5, 31.	Do.	1901	Feb. 2, 24-26; Mar. 18; Dec. 1, 18-22.	May 3; June 30; July 12.
1896	Feb. 18.....	Do.	1902	Jan. 1, 13-15, 18, 23; Feb. 11-13, 17-20.	May 26; June 26, 27; July 1, 7; Aug. 21-23.
1897	Jan. 10, 23, 28, 29.....	June 14.	1903	Jan. 7, 9; Feb. 18; Nov. 28; Dec. 22, 27, 28, 31.	None.
1898	Jan. 2-4; Feb. 2; Dec. 7, 12.	None.			
1899	Feb. 9, 13, 14; Mar. 8; Dec. 30, 31.	May 9, 23.			

FLORIDA.

Central District: HILLSBORO COUNTY. Station: TAMPA.

N. R. TAYLOR, Observer.

[Established by the U. S. Signal Service in March, 1890. Latitude, 27° 57' N. Longitude, 82° 27' W. Elevation, 17 feet.]

This station is in the city of Tampa, Fla., and is located in the Knight Building, 315 Franklin street. It is about 3,000 feet north of Tampa Bay, which is the southern boundary of the city, and about 700 feet east of the Hillsboro River, a stream some 400 feet wide, that divides the town into two sections. The city lies on rising ground 10 to 40 feet above sea level, and the surrounding country is low and level.

The thermometers are exposed in a standard Weather Bureau instrument shelter. They are 11.1 feet above the roof of the building and 60 feet above the ground. The rain gage is also on the roof of the building, and from the top of the gage to the ground is 51 feet. It is 15 feet west of the instrument shelter and 40 feet east of a 20-foot flagstaff. The elevation of the anemometer cups is 67 feet above ground.

From March 8 to April 4, 1890, the station was located in the Gould Building, corner of Madison and Franklin streets, and from April 5, 1890, to April 15, 1892, the station occupied the Allen Building, 508 Franklin street. The building in which the station is at present located has been occupied by the Weather Bureau since April 16, 1892. Owing to the slight difference in the elevation between the three buildings and the proximity of the Gould and the Allen buildings to the one in which the station is now located, the changes in the exposure of the instruments have not been sufficient to impair the sequence of the records.

The average number of days with fog is from eleven years' record. The sunshine data are from seven years. All other tabulated data are from thirteen years—April 1, 1890, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wd.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with .001 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of pos- sible.
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 61	° F. 70	° F. 83	° F. 52	° F. 19	° F. 66	° F. 56	In. 1.8		In. 8	In. 1.2	In. 0.5	In. 0.0	P.ct. 87	Gr. 4.22	P.ct. 78	Gr. 4.63	191	59	N.
January.....	59	68	82	50	27	64	57	2.8		8	1.2	1.4	0.0	86	4.03	77	4.28	194	59	NW.
February.....	62	70	86	53	22	69	54	3.5		8	1.8	2.7	0.0	86	4.46	76	4.67	192	61	NE.
Winter mean.....	61	70	.....	52	.....	.....	.....	8.1	24	4.2	4.6	0.0	.....	86	4.24	77	4.53	192	60	NW.
March.....	67	76	88	58	32	72	62	2.9	7	3.6	1.7	0.0	0.0	84	4.99	74	5.32	200	67	NE.
April.....	70	80	90	60	38	72	67	2.1	6	1.6	1.4	0.0	0.0	78	5.47	69	5.51	267	69	W.
May.....	76	85	94	67	53	78	74	2.4	6	4.3	6.9	0.0	0.0	79	6.94	71	6.85	305	73	W.
Spring mean.....	71	80	.....	62	.....	.....	.....	7.4	19	9.5	10.0	0.0	.....	80	5.80	71	5.89	274	70	W.
June.....	80	89	95	71	64	81	79	8.5	16	7.5	9.2	0.0	0.0	82	4.83	79	8.12	262	63	SE.
July.....	81	89	96	73	65	83	80	8.0	18	6.8	11.6	0.0	0.0	83	8.80	81	8.86	249	59	E.
August.....	82	90	95	74	66	83	80	8.4	18	8.0	7.2	0.0	0.0	84	8.90	82	8.97	252	62	NE.
Summer mean....	81	89	.....	73	.....	.....	.....	24.9	52	22.3	28.0	0.0	.....	83	7.51	81	8.65	254	61	E.
September.....	80	88	91	72	54	81	78	8.2	16	5.2	17.3	0.0	0.0	87	8.40	82	8.43	226	61	NE.
October.....	74	82	92	66	44	77	70	2.8	7	0.4	4.8	0.0	0.0	85	6.57	76	6.67	210	65	NE.
November.....	67	76	87	58	32	72	61	1.7	5	0.5	2.3	0.0	0.0	86	5.28	76	5.50	205	63	N.
Fall mean.....	73	82	.....	65	.....	.....	.....	12.7	28	6.1	24.4	0.0	.....	86	6.75	78	6.87	220	63	NE.
Annual mean.....	72	80	96	63	19	.....	.....	53.1	123	42.1	67.0	0.0	0.1	84	6.07	77	6.48	235	63	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 30°.	Maximum 95° or above.	Year.	Minimum below 30°.	Maximum 95° or above.
1894	Dec. 29, 30.....	None.	1899	Feb. 9, 13, 14.....	None.
1895	Feb. 8, 9.....	Aug. 20.	1900	Jan. 3; Feb. 18, 19.....	July 10.
1896	None	Aug. 10.	1901	Dec. 19, 21, 22.....	None.
1897	Jan. 29.....	None.	1902	Jan. 14; Dec. 27, 28.....	July 2, 6-8.
1898	Jan. 2, 3.....	June 28; July 20.	1903	None.....	Aug. 12, 15.

FLORIDA.

Central District: POLK COUNTY. Station: BARTOW.

J. S. WADE, Observer.

[Established by U. S. Weather Bureau in August, 1895. Latitude, 27° 57' N. Longitude, 81° 59' W. Elevation, 122 feet.]

This station is in the south central portion of the county, on a plateau gently sloping northward and about 200 feet above sea level. The surrounding country is generally open and forms a part of the orange belt. To the north of the station is an open lot, 105 by 210 feet, overgrown with pine and oak trees. Maximum and minimum thermometers are exposed in a standard shelter, painted white. The shelter is about 20 feet north of a cottage. The instruments are 5 feet above a plot of Bermuda grass.

The rain gage is 20 feet northeast of the instrument shelter and within 10 feet of several young orange trees. The bottom of the gage is 3 feet above the ground. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 61	° F. 72	° F. 90	° F. 50	° F. 27	° F. 65	° F. 55	In. 2.4	5	In. 2.1	In. 1.0	In. 0.0	In. 0.0	NW.
January.....	59	70	89	48	18	65	55	2.7	5	2.5	8.6	0.0	0.0	NW.
February.....	62	73	90	51	22	69	58	4.0	6	2.6	4.9	0.0	0.4	SW.
Winter mean.....	61	72		50				9.1	16	7.2	12.5	0.0		SW.
March.....	69	80	91	57	31	74	62	2.4	5	1.6	6.4	0.0	0.0	SW.
April.....	70	82	93	58	39	71	66	2.3	3	0.0	0.6	0.0	0.0	W.
May.....	77	89	98	65	46	80	75	3.0	6	2.8	6.2	0.0	0.0	SW.
Spring mean.....	72	84		60				7.7	14	4.4	13.2	0.0		SW.
June.....	81	90	99	72	60	83	80	8.2	14	9.8	10.4	0.0	0.0	SW.
July.....	82	90	100	73	67	83	80	8.6	17	7.4	9.2	0.0	0.0	S.
August.....	81	90	98	73	67	83	80	7.8	14	4.5	11.6	0.0	0.0	SW.
Summer mean.....	81	90		73				24.6	45	21.7	31.2	0.0		SW.
September.....	80	88	97	72	53	82	79	8.3	13	5.3	10.6	0.0	0.0	NE.
October.....	75	83	96	66	41	78	72	3.2	7	1.4	1.0	0.0	0.0	NE.
November.....	68	78	89	57	28	73	62	1.6	5	1.0	1.5	0.0	0.0	NE.
Fall mean.....	74	83		65				13.1	25	7.7	13.1	0.0		NE.
Annual mean.....	72	82	100	62	18			54.5	100	41.0	70.0	0.0	0.4	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD AUGUST 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1895	Dec. 6.....	None.	1901	Jan. 19; Feb. 22, 25;	June 1.30.
1896	Jan. 2; Feb. 19.....	Aug. 14, 19, 26.		Mar. 17; Nov. 18;	
1897	Jan. 7-10, 28, 29; Dec.	June 24-29, 30; July 4, 31; Aug. 1, 2, 5, 13,		Dec. 19, 21, 22.	
	30.	14, 16-19, 29, 30; Sept. 3.	1902	Jan. 14, 15, 23; Feb. 11;	July 7; Aug. 20-23, 29; Sept. 28-30;
1898	Jan. 2-4; Feb. 2, 23;	May 4-6, 16-22, 24-31; June 1-4, 9-18, 20,		Dec. 27, 28.	Oct. 1.
	Dec. 12.	23-26, 28-30; July 1, 7, 16-23.	1903	Jan. 7, 9, 13; Nov. 28;	Aug. 22; Sept. 28.
1899	Feb. 9, 13, 14.....	May 12, 18, 31; June 1-3, 9, 10, 12, 14-16,		Dec. 1, 4, 31.	
		22, 23, 25; July 5, 6, 18, 27; Aug. 3-6, 20,			
		26.			
1900	Jan. 2, 3; Feb. 18-20...	May 21; June 25, 26, 28-30; July 1, 2, 5, 7;			
		Aug. 13, 17, 19-22.			

FLORIDA.

East Coast: DADE COUNTY. Station: JUPITER.

H. P. HARDIN, Observer.

[Established by Signal Service on January 1, 1888. Latitude, 26° 57' N. Longitude, 80° 7' W. Elevation, 17 feet.]

This station is located on an elevated point between the Indian and Loxahatchee Rivers, where they unite to form Jupiter Inlet, the building being on the north bank of the Loxahatchee and about 200 yards west of Indian River. The Atlantic Ocean is half a mile east of the station, and between it and Indian River there is a narrow strip of mangrove swamp and palmetto-covered beach; on the south bank of the Loxahatchee is the village of Jupiter. The mound on which the station stands is supposed to be artificial and is now covered with a growth of oak and palmetto; 400 yards west and north of the office the low pine land seen everywhere in Florida begins. The thermometers are exposed in a standard Weather Bureau shelter, located on the ground 28 feet from the northeast corner of the office building, elevation of the instruments being 10 feet.

The rain gage is located on the ground 30 feet east of the building, the top of it being 3 feet above the ground. The anemometer, wind vane, and sunshine recorder are exposed on the roof of building, their elevations being 48, 47, and 42 feet, respectively, above the ground.

The sunshine record is for four and one-half years from August, 1899, to December, 1903; humidity, fifteen years, 1889-1903. Remainder of data is from full period of observation, sixteen years, January 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing w.d.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	67	73	86	60	24	71	63	2.5	9	2.6	2.0	0.0	.....	81	5.32	79	5.73	217	68	NW.
January.....	65	72	83	58	31	72	60	3.9	10	0.4	5.2	0.0	.....	84	5.16	79	5.36	217	64	NW.
February.....	66	73	87	59	27	72	58	2.9	9	1.0	5.1	0.0	.....	83	5.44	78	5.47	196	66	S.
Winter mean.....	66	73	.....	59	.....	.....	.....	9.3	28	4.0	12.3	0.0	.....	83	5.31	79	5.52	210	66	NW.
March.....	69	76	89	62	33	74	65	3.2	7	3.3	3.6	0.0	.....	79	5.72	77	5.95	248	66	S.
April.....	72	78	88	65	39	74	69	2.6	7	1.9	8.5	0.0	.....	76	6.26	74	6.30	300	78	SE.
May.....	76	83	93	69	53	78	74	5.1	9	1.2	10.7	0.0	.....	78	7.77	79	7.39	279	68	SE.
Spring mean.....	72	79	.....	65	.....	.....	.....	10.9	23	6.4	22.8	0.0	.....	78	6.58	77	6.55	276	71	SE.
June.....	79	85	95	72	64	81	77	6.4	13	0.1	4.7	0.0	.....	82	8.97	84	8.63	240	60	SE.
July.....	81	87	95	75	68	82	80	5.1	13	6.8	5.9	0.0	.....	80	8.75	83	9.36	279	68	SE.
August.....	81	88	96	75	68	83	80	5.1	13	6.6	6.8	0.0	.....	82	9.43	84	8.88	279	72	SE.
Summer mean.....	80	87	.....	74	.....	.....	.....	16.6	39	13.5	17.4	0.0	.....	81	9.05	84	8.96	266	67	SE.
September.....	80	86	93	74	67	82	78	9.7	20	3.4	18.1	0.0	.....	83	8.88	84	8.90	210	59	NE.
October.....	76	82	94	71	48	79	74	9.4	15	10.9	9.9	0.0	.....	81	7.58	80	7.72	217	57	NE.
November.....	72	78	87	66	42	76	67	2.8	9	1.1	6.5	0.0	.....	81	6.46	78	5.64	240	69	E.
Fall mean.....	76	82	.....	70	.....	.....	.....	21.9	44	15.4	34.5	0.0	.....	82	7.64	81	7.42	222	62	NE.
Annual mean.....	74	80	96	67	24	.....	.....	58.7	134	39.3	87.0	0.0	.....	81	7.14	80	7.11	244	66	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 93° or above.	Year.	Minimum below 32°.	Maximum 93° or above.
1894	Dec. 29.....	None.	1899	Feb. 14.....	Aug. 7.
1895	Feb. 8, 9.....	July 27, 28; Aug. 18.	1900	Feb. 19.....	Aug. 22.
1896	None.....	Aug. 20.	1901	None.....	None.
1897	.....do.....	June 21; Aug. 9, 12.	1902	.....do.....	Aug. 16, 17, 23; Sept. 4; Oct. 1.
1898	Jan. 2, 3.....	None.	1903	.....do.....	Aug. 28, 29, 31; Sept. 1.

FLORIDA.

Southern District: LEE COUNTY. Station: MYERS.

M. M. GARDNER, Observer.

[Established by the United States post hospital in 1851. Latitude, 26° 38' N. Longitude, 81° 46' W. Elevation, 10 feet.]

This station is located in the village of Myers, on the south bank of the Caloosahatchee River, which at this point is about 1½ miles wide. The surrounding country is generally flat, pine woods, with an occasional "bayhead." The distance to the Gulf of Mexico is 16 to 20 miles, with the waters of San Carlos Bay intervening.

The shelter is a standard one. The maximum and minimum thermometers in the shelter are 5 feet above the sod. The rain gage is 50 feet from the instrument shelter and is well exposed. The top of the gage is 4 feet above the ground.

From 1851 to 1858 monthly mean temperatures were computed from daily observed readings at 7 a. m., 2 p. m., and 9 p. m., after which the daily extremes were used.

Tabulated data are for the following periods of observation: Monthly and annual mean temperatures, and highest and lowest monthly means, mean precipitation, and precipitation for the wettest and driest years, about twenty years, from January 1, 1851, to June 30, 1858, and October 1, 1891, to December 31, 1903. The remaining data are for about twelve years from October 1, 1891, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Greatest depth of snow in 24 hours	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	64	72	84	55	24	72	58	1.9	11	2.8	3.5	0.0	NE
January.....	62	72	89	52	28	68	56	2.1	5	0.1	4.3	0.0	NE
February.....	65	74	85	54	28	69	58	3.1	5	0.0	1.6	T.	S
Winter mean.....	64	73	.....	54	.....	.....	.....	7.1	14	2.9	9.4	.....	NE.
March.....	68	79	88	58	39	74	63	2.8	4	0.8	2.5	0.0	S.
April.....	72	82	90	61	45	76	68	2.5	4	2.1	2.2	0.0	S.
May.....	77	86	94	66	50	82	74	3.2	7	0.2	1.8	0.0	SE.
Spring mean.....	72	82	.....	62	.....	.....	.....	8.5	15	3.1	6.5	.....	S.
June.....	80	88	94	71	58	82	76	11.0	15	8.0	25.6	0.0	S.
July.....	81	88	94	73	67	84	79	8.6	15	8.7	6.3	0.0	S.
August.....	81	88	93	74	69	84	79	7.6	14	9.3	10.4	0.0	S.
Summer mean.....	81	88	.....	73	.....	.....	.....	27.2	44	26.0	42.3	.....	S.
September.....	80	86	93	73	61	83	78	8.1	14	6.1	22.1	0.0	E.
October.....	75	82	89	68	48	78	71	3.1	7	2.1	1.5	0.0	E.
November.....	70	77	87	61	35	77	63	1.1	4	0.0	0.8	0.0	NE.
Fall mean.....	75	82	.....	67	.....	.....	.....	12.3	25	8.2	24.4	.....	E.
Annual mean.....	73	81	94	64	24	.....	.....	55.1	98	40.2	82.7	T.	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 94° or above.	Year.	Minimum below 32°.	Maximum 94° or above.
1894	Dec. 29.....	None.	1899	Feb. 14.....	None.
1895	Feb. 9.....	May 28.	1900	None.....	Do.
1896	None.....	None.	1901	.....do.....	June 5.
1897	.....do.....	Do.	1902	Jan. 14.....	June 19, 27; July 8.
1898	Jan. 1.....	July 19.	1903	None.....	May 26.

FLORIDA.

Southern District: DADE COUNTY. Station: MIAMI.

E. V. BLACKMAN, Observer.

[Established in 1839 (Mas. Surgeon-General's Office). Latitude, 25° 46' N. Longitude, 80° 11' W. Elevation, 12 feet.]

This station is located between avenues B and C. There are several residences on each side of the instrument shelter and about 50 feet from it. Otherwise the surroundings are open and free from obstructions. The land in the immediate vicinity of the town and country contiguous thereto is low and studded irregularly with the longleaf pine. The most elevated portion of the city does not exceed 12 feet above sea level. About one-fourth of a mile to the north of the station is the Miami River and to the east is Biscayne Bay—a large body of water separated from the ocean by a narrow strip of land. A standard instrument shelter, 4½ feet above the ground, is in use. The rain gage is about 15 feet from the shelter, and the top is 2 feet above the ground.

From 1839–1858 monthly mean temperatures were computed from observed readings made daily at 7 a. m., 2 p. m., and 9 p. m., after which the daily extremes of temperature were used.

Tabulated data are for the following periods of observation: Mean temperature, and the highest and lowest means, 1839–1841, 1850, 1855–1858, and 1895–1903; precipitation data for 1855–1858, and 1895–1903; remainder of data, 1895–1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December	69	76	91	61	37	74	63	1.6	2	1.8	1.6	0.0	0.0	E.	
January	65	74	85	57	35	73	60	4.0	4	0.4		0.0	0.0	SE.	
February	67	76	88	59	29	73	61	2.5	3	3.8	T.	0.0	0.0	SE.	
Winter mean	67	75		59				8.1	9	6.0	1.6	0.0		SE.	
March	71	81	90	64	39	75	65	3.1	4	2.1	1.8	0.0	0.0	SE.	
April	74	82	92	64	46	79	70	3.5	4	0.1	2.0	0.0	0.0	SE.	
May	76	86	96	69	52	80	46	4.5	5	2.3	10.4	0.0	0.0	SE.	
Spring mean	73	83		66				11.1	13	4.5	14.2	0.0		SE.	
June	81	89	94	74	65	82	79	8.2	8	13.6	21.7	0.0	0.0	SE.	
July	82	89	92	76	69	84	81	7.0	7	3.4	8.2	0.0	0.0	SE.	
August	82	90	94	75	60	84	78	5.4	7	6.4	10.8	0.0	0.0	SE.	
Summer mean	82	89		75				20.6	22	23.4	40.7	0.0		SE.	
September	81	88	95	74	62	83	77	9.1	12	6.4	15.3	0.0	0.0	SE.	
October	78	84	93	71	54	81	74	7.1	7	1.2	4.9	0.0	0.0	NE.	
November	74	80	88	67	38	77	67	2.3	2	1.0	0.0	0.0	0.0	E.	
Fall mean	78	84		71				18.5	21	8.6	20.2	0.0		SE.	
Annual mean	75	83	96	68				58.3	65	42.5	a 76.7	0.0	0.0	SE.	

a Total incomplete.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD SEPTEMBER 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1895		Sept. 15.	1900	Feb. 19	None.
1896	None	None.	1901	None	Do.
1897	do	Do.	1902	do	May 27.
1898	do	Do.	1903	do	None.
1899	Feb. 14	Do.			

FLORIDA.

Extreme Southern District: MONROE COUNTY. Station: KEY WEST.

W. U. SIMONS, Observer.

[Established by Signal Service November 1, 1870. Latitude, 24° 34' N. Longitude, 81° 49' W. Elevation, 8 feet.]

The island of Key West is about 4½ miles long and 1½ miles wide at extreme measurements, but is of a very irregular shape. The office has at all times been located within 200 yards of the western side of the island, and in the western portion of the city. The highest point of land is 11 feet above mean tide level, and the instruments have not at any time been exposed at more than 50 feet above the ground. The range of temperature is very slight, the extreme range being from 41° to 100°, and frost, snow, or hail have never been recorded. The humidity is from fifteen years' record. Other tabulated data are from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Mean humidity.				Direction of prevailing wind
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	P. ct.	Grs.	P. ct.	Grs.	
December	70	74	87	66	44	75	65	1.7	7	1.2	4.5	82	6.34	79	6.30	NE.
January	70	74	90	65	41	76	64	2.0	8	2.9	4.3	82	5.94	80	6.18	NE.
February	71	76	87	67	44	76	64	1.6	7	0.9	3.1	81	6.26	78	6.22	NE.
Winter mean	70	75	88	66	43	75	64	5.3	22	5.0	11.9	82	6.18	79	6.23	NE.
March	73	77	89	63	48	77	69	1.2	5	T.	0.4	77	6.34	75	6.38	SE.
April	76	80	91	71	59	80	72	1.2	4	0.6	0.6	73	6.62	73	6.62	E.
May	79	84	93	75	63	83	77	3.1	8	2.3	5.1	73	7.50	74	7.60	E.
Spring mean	76	80	91	71	59	80	74	5.5	17	2.9	6.1	74	6.82	74	6.87	E.
June	82	87	100	78	69	85	79	4.2	12	2.7	7.2	76	8.84	77	8.57	SE.
July	84	89	100	79	68	87	82	3.7	13	3.1	1.5	74	8.87	75	8.72	E.
August	84	89	100	79	68	86	81	4.7	14	1.9	5.6	74	8.87	75	8.72	SE.
Summer mean	82	88	100	79	69	86	81	12.6	39	7.7	14.3	75	8.86	76	8.76	SE.
September	85	87	97	78	69	85	81	7.0	13	2.2	0.7	77	8.35	78	8.79	E.
October	79	83	92	75	61	81	76	5.4	16	3.8	14.2	79	8.38	78	8.05	NE.
November	74	78	91	71	51	80	70	2.1	13	0.5	2.2	80	7.03	79	7.16	NE.
Fall mean	79	83	92	75	54	80	74	14.5	42	6.5	26.1	79	8.12	78	7.99	NE.
Annual mean	77	82	100	73	41	80	74	37.9	120	22.1	58.4	77	7.40	77	7.40	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 50°.	Maximum 95° or above.	Year.	Minimum below 50°.	Maximum 95° or above.
1894	Dec. 29, 30	None.	1899	Feb. 13, 14	None.
1895	Feb. 8, 9, 10	Do.	1900	None	Do.
1896	None	Do.	1901	Dec. 21	Do.
1897	do.	Do.	1902	Jan. 14	Do.
1898	Jan. 2, 3	Do.	1903	None	Do.

ALABAMA.

By FRANK P. CHAFFEE,
Section Director.

ALABAMA.

ACKNOWLEDGMENTS.

The information given below, relative to topography and soils, has, to a great extent, been obtained from the geological survey of Alabama, by Eugene A. Smith, Ph. D., State geologist. In the preparation of the climatic data, reference has been made to the reports of the Smithsonian Institution, reports of the United States Signal Service, now the Weather Bureau, Bulletin No. 18 of the agricultural experiment station at Auburn, Ala., and the reports of the various voluntary observers cooperating with the Weather Bureau through the Montgomery office.

PHYSICAL FEATURES.

Situation.—Alabama extends northward as an oblong from the Gulf of Mexico and from the thirty-first to the thirty-fifth degrees of north latitude, the latter being the dividing line between this State and Tennessee, and lies between the eighty-fifth and eighty-ninth degrees of west longitude. The total area is estimated at 52,250 square miles.

Topography.—The State may be considered as an undulating plain, whose mean elevation is about 600 feet, gradually rising from sea level in the extreme southwest to the rolling prairies and foothills of the middle counties, from which the rise is much more pronounced to the southwestern terminus of the Appalachian Mountain chain, which extends into the northeastern portion of the State. In the northeastern counties the mountains reach an elevation of 1,200 to 1,500 feet above the general level of that section, or about 2,000 to 2,500 feet above sea level. The mountains are mostly flat on top, forming table-lands from 7 to 15 miles wide. All the valleys in the mountainous region of the State, like the ranges themselves, have a northeast and southwest direction. The most important of these valleys is that of the Coosa.

Drainage.—The extreme southeastern, southern, and southwestern parts of the State are drained by the Chattahoochee and numerous smaller rivers flowing southward into the Gulf. The northern portion is drained by the Tennessee into the Mississippi system. The remainder of the State, including all of the western, northeastern, central, and south-central portions, is drained by the Mobile system, composed of the Tombigbee and its branches and the Alabama and its tributaries, the Coosa, and Tallapoosa. The State, as a whole, is very well watered.

CLIMATE.

In its distance from the Equator, elevation above sea level, configuration of its mountain chains, proximity to the sea, and prevailing winds, Alabama is favorably situated for a temperate and comparatively uniform climate. In the extreme southwestern portion, washed by the waters of the Gulf of Mexico, the climate approaches the subtropical, while the climate of the highlands of the northeast is similar to that of regions of less elevation much farther north. Extremes of temperature are rare. Over the southern half of the State, the heat of summer is tempered by the prevailing winds from the Gulf, and in the more northern counties the elevation secures immunity from excessively high temperature. Freezing temperature does not often continue longer than twenty-four to forty-eight hours. Snow rarely falls, except in the northern counties, where it occurs on an average of about twice each winter, and seldom remains on the ground for more than forty-eight hours. The rivers do not freeze. With the exception of along the Gulf coast, where the precipitation is heavy, the rainfall is well distributed. The growing season is so long that often two and sometimes three minor crops are raised on the same ground in one year.

The following is a more detailed statement of the climate:

Temperature.—The average temperature for the entire State is 63°, for the southern portion, 66°; middle portion, 64°; northern portion, 60°. Highest average, 67°, in Baldwin and Mobile counties; lowest average, 60°, in Dekalb County in northeastern portion of State. The average by seasons is as follows: Winter, 46°; spring, 63°; summer, 79°; autumn, 63°. The average summer maximum is 90° and the average winter minimum 35°. The absolute maximum, 109°, occurred at Lock No. 4 (Lincoln), Talladega County, July 7, 1902; the absolute minimum, 17° below zero, at Valley Head, Dekalb County, February 13, 1899. Average number of days per year with temperature above 90°, 62; average number of days per year with temperature below 32°, 35. The temperature seldom falls below zero, the above extremely low reading being recorded during the severe cold wave of February 12-13, 1899, which gave the coldest weather ever recorded or remembered in this section. The maximum and minimum temperatures usually occur during the months of July and January, respectively.

Killing frost.—The average dates of last killing frost in spring are as follows: Northern district, April 6; middle district, March 23; southern district, March 9; for State, March 23. Average dates of first killing frost in autumn: Northern district, October 20; middle district, November 5; southern district, November 17; for State, November 4. This gives average growing seasons as follows: Northern district, 197 days; middle district, 227 days; southern district, 253 days; for State, 226 days. The latest killing frost known, May 2, 1897, at Oneonto, Blount County; with this exception, the latest on record was April 30, at Valley Head, Dekalb County. The earliest killing frost of which there is an official record was

October 2, at Decatur, Morgan County, but the voluntary observer at Oneonta reports that there is a record of killing frost having occurred at that place on September 4, 1866. Over the middle counties the last killing frost, as a rule, occurs during the first half of April and where the last frost is recorded in March the records show its formation during the early part of April was prevented by cloudy weather or fresh to brisk winds. The first killing frost usually occurs over the middle counties during the last half of October. When the first frost occurred in November the records show that at some time during the last half of October the temperature was low enough for frost, the formation of which was prevented by conditions mentioned above.

Precipitation.—Annual average for the State, as a whole, 52 inches; for northern district, 52 inches; middle district, 51 inches; southern district, 55 inches. The greatest annual average is in the southwestern counties, bordering on the Gulf of Mexico, where it is from 62 to 63 inches. Another region of heavy precipitation is found over the mountainous, or north-central and northeastern portions, where it ranges from 54 to 57 inches per year. The region of least precipitation is near the center of the State, where the annual average is about 46 inches. The precipitation is practically all rain. Snow occurs on an average of twice each winter in the northern half of the State, and, on an average, about once a winter in southern counties; it varies from very light in the southern district to moderately heavy (about 8 to 14 inches) in north-central and northern counties. It is not uncommon for a winter to pass without snow enough to cover the ground in any portion of the State. The precipitation is well distributed throughout the growing season, especially in the middle or most important agricultural counties, and the autumns are, as a rule, favorable for maturing and gathering the staple crops.

Sunshine and cloudiness.—Average number of days per year: Clear, 148; partly cloudy, 107; cloudy, 110; with rain (0.01 inch or more), 120.

Wind.—The prevailing direction for the year is south; for winter, north; spring, south; summer, south; autumn, north. Average hourly velocity (computed from records at Mobile and Montgomery only), 7 miles. The highest hourly velocity ever recorded was 72 miles from southeast, at Mobile, October 2, 1893. Winds of 40 miles per hour or more have occurred as follows: Mobile (record from 1885 to 1903, inclusive), 23 times, or an average of a little more than once a year. Montgomery (record from 1875 to 1903, inclusive), 12 times, or an average of about once in three years.

During the passage of general storms over, and to the north of this region, destructive local windstorms, or tornadoes, have occurred as follows: Year of greatest frequency, 1884, with 19 storms; average yearly frequency, 1.6 storms; year in past 23 with no report of storms, none; month of greatest frequency, March; day of greatest frequency, January 11; hours of greatest frequency, 6 to 8 p. m.; months without such storms, July, August, September, and October; prevailing direction of storm movement, southwest to northeast; region of greatest frequency, north-central portion.

Fog.—Dense fog seldom occurs, and then, as a rule, in the winter or spring months, and is confined mostly to the coast district.

Hail.—Hail occurs occasionally during the spring and summer months, though really destructive hailstorms are rare in this section.

Thunderstorms.—These occur in some portion of the State during every month of the year, being most frequent during the summer months. The most severe thunderstorms occur along the Gulf coast, and in the west-central counties.

Droughts.—Below is given the record of some notable droughts in Alabama, prior to the time a regular climatic record was kept in that State by the Signal Service or the Weather Bureau, being extracts from Bulletin No. 18 of the Agricultural Experiment Station at Auburn, Ala.

"1825.—A dry summer.

"1839-40.—A great drought throughout Alabama and the entire South from about August 1, 1839, to near the end of January, 1840. The Warrior River at Tuscaloosa was very nearly dry. At Montgomery there was a light rain in August, and no more until late in October. The Alabama River was too low for navigation.

"1845.—The spring and summer were exceedingly dry.

"1851.—Summer dry and hot, and there was but little rain from May 4 until August 10.

"1853.—A general drought during April and May.

"1857.—No rain fell in east Alabama during the months of June and July.

"1860.—No rain fell in east Alabama from June 5 to July 27. Many creeks were dry."

Local droughts occurred in June, 1882; March, 1887; May, 1888, 1891, and 1897; February, March, and May, 1898, and in 1902, from the middle of April to the latter part of August. Droughty conditions are more apt to prevail in the fall months than during the season of growing crops.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Autauga (see Montgomery)		Central.....		Chilton (see Goodwater and Montgomery)		Central.....	
Baldwin (see Mobile)		Coast.....		Choctaw.....	Pushmataha..	Southwestern..	376
Barbour.....	Eufaula.....	Southeastern..	379	Clarke (see Pushmataha)		do.....	
Bibb (see Greensboro)		West central..		Clay (see Goodwater)		East central..	
Blount.....	Oneonta.....	North central..	370	Cleburne (see Anniston)		Northeastern..	
Bullock (see Montgomery and Eufaula)		Southeastern..		Coffee (see Eufaula)		Southeastern..	
Butler (see Evergreen)		Southern.....		Colbert (see Florence)		Northwestern..	
Calhoun.....	Anniston....	Northeastern..	372	Conceh.....	Evergreen....	Southern.....	380
Chambers (see Opelika)		Eastern.....		Coosa.....	Goodwater....	East central..	371
Cherokee (see Valley Head)		Northeastern..		Covington (see Evergreen)		Southern.....	

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Crenshaw (<i>see</i> Montgomery)		South central.		Madison (<i>see</i> Decatur)		Northern.	
Cullman (<i>see</i> Decatur and Oneonta)		Northern.		Marengo (<i>see</i> Pushmataha)		Southwestern.	
Dale (<i>see</i> Eufaula)		Southeastern.		Marion (<i>see</i> Florence; also Pontotoc, Miss.)		Northwestern.	
Dallas (<i>see</i> Greensboro and Montgomery)		West central.		Marshall (<i>see</i> Decatur and Valley Head)		Northeastern.	
Dekalb	Valley Head.	Northeastern.	369	Mobile	Mobile.	Coast.	381
Elmore (<i>see</i> Montgomery)		Central.		Monroe (<i>see</i> Evergreen)		Southwestern.	
Escambia (<i>see</i> Evergreen)		Southern.		Montgomery	Montgomery.	South central.	377
Etowah (<i>see</i> Oneonta and Anniston)		Northeastern.		Morgan	Decatur.	Northern.	368
Fayette (<i>see</i> Tuscaloosa)		Northwestern.		Perry (<i>see</i> Greensboro)		West central.	
Franklin (<i>see</i> Florence)		do.		Pickens (<i>see</i> Tuscaloosa)		Western.	
Geneva (<i>see</i> Evergreen; also Tallahassee, Fla.)		Southeastern.		Pike (<i>see</i> Montgomery)		Southeastern.	
Greene (<i>see</i> Greensboro)		Western.		Randolph (<i>see</i> Anniston)		Eastern.	
Hale	Greensboro.	West central.	375	Russell (<i>see</i> Eufaula and Opelika)		do.	
Henry (<i>see</i> Eufaula)		Southeastern.		Shelby (<i>see</i> Birmingham and Goodwater)		North central.	
Houston (<i>see</i> Tallahassee, Fla.)		do.		St. Clair (<i>see</i> Anniston, Birmingham, and Oneonta)		Northeastern.	
Jackson (<i>see</i> Valley Head; also Chattanooga, Tenn.)		Northeastern.		Sumter (<i>see</i> Pushmataha; also Meridian, Miss.)		Western.	
Jefferson	Birmingham.	North central.	371	Talladega (<i>see</i> Anniston and Goodwater)		East central.	
Lamar (<i>see</i> Tuscaloosa; also Palo Alto, Miss.)		Western.		Tallapoosa (<i>see</i> Goodwater and Opelika)		do.	
Lauderdale	Florence.	Northwestern.	367	Tuscaloosa	Tuscaloosa.	West central.	373
Lawrence (<i>see</i> Decatur and Florence)		do.		Walker (<i>see</i> Birmingham)		North central.	
Lee	Opelika.	Eastern.	378	Washington (<i>see</i> Mobile and Pushmataha)		Southwestern.	
Limestone (<i>see</i> Decatur)		Northern.		Wilcox (<i>see</i> Pushmataha and Montgomery)		do.	
Lowndes (<i>see</i> Montgomery)		Central.		Winston (<i>see</i> Decatur)		Northwestern.	
Macon (<i>see</i> Montgomery and Opelika)		East central.					

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.
		° F.	° F.	° F.	° F.		° F.		Minimum below 32°.
Florence	1	61	72	51	104	July, 1902.	-11	Feb. 1899.	42
Decatur	2	61	72	50	107	do.	-12	do.	66
Valley Head	3	59	70	49	102		-17		53
Oneonta	4	61	71	49	103	July, 1896.	-15	Feb. 1899.	69
Birmingham	5	64	74	55	104	July, 1901.	-10	do.	63
Anniston	6	62	72	51	103	August, 1902.	-10	do.	64
Tuscaloosa	7	63	74	51	106	July, 1901.	-7	do.	71
Goodwater	8	63	74	51	105	July, 1902.	-8	do.	68
Greensboro	9	64	74	54	105	July, 1901.	-5	do.	53
Pushmataha	10	64	75	54	106	do.	-7	do.	68
Montgomery	11	66	75	56	107	July, 1881.	-5	do.	65
Opelika	12	63	74	53	104	August, 1897.	-7	do.	64
Eufaula	13	65	76	54	104	July, 1902.	-4	do.	53
Evergreen	14	65	76	53	105	July, 1901.	0	do.	53
Mobile	15	67	75	59	102	do.	-1	do.	41

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Florence	1	Oct. 30	Apr. 1	Oct. 25	Apr. 9	Inches. 50.3	Inches. 15.0	Inches. 13.3	Inches. 8.4	Inches. 13.6
Decatur	2	Oct. 15	Apr. 5	Oct. 2	Apr. 15	49.5	14.5	11.3	8.6	15.1
Valley Head	3	Oct. 20	do.	Oct. 6	Apr. 30	54.4	15.6	14.9	9.3	14.6
Oneonta	4	Oct. 15	Apr. 10	Sept. 4	May 2	53.7	16.2	14.9	6.7	15.9
Birmingham	5	Nov. 5	Mar. 19	Oct. 22	Apr. 10	56.8	16.5	15.7	9.6	15.0
Anniston	6	Oct. 20	Apr. 2	Oct. 6	Apr. 20	49.1	14.0	13.2	8.1	13.8
Tuscaloosa	7	Nov. 6	Mar. 23	Oct. 21	Apr. 9	49.5	14.2	13.1	7.0	15.2
Goodwater	8	Nov. 9	Mar. 20	Oct. 18	Apr. 8	48.9	13.5	13.6	7.1	14.7
Greensboro	9	Nov. 8	do.	Oct. 24	Apr. 5	48.5	13.1	12.0	7.4	14.7
Pushmataha	10	Nov. 12	Mar. 21	Oct. 25	do.	52.8	15.4	13.7	8.7	16.3
Montgomery	11	Nov. 8	Mar. 11	Oct. 21	do.	50.8	14.6	13.5	8.2	14.5
Opelika	12	Nov. 9	Mar. 17	Oct. 25	Apr. 1	49.1	12.2	13.5	9.0	14.4
Eufaula	13	do.	Mar. 14	do.	do.	51.1	12.0	16.2	8.4	14.5
Evergreen	14	Nov. 12	Mar. 13	Oct. 24	Apr. 5	51.0	11.0	18.0	8.9	13.1
Mobile	15	Nov. 30	Feb. 24	Oct. 31	Mar. 28	62.1	16.1	19.7	11.6	14.7

ALABAMA.

Northwestern Portion: LAUDERDALE COUNTY. Station: FLORENCE.

G. H. SMITH, Observer.

[Established by Signal Service in June, 1884. Latitude, 34° 48' N. Longitude, 87° 37' W. Elevation, 563 feet.]

This station is near the southeastern limits of the city of Florence; it is about 1 mile north of the Tennessee River, and about one-half mile north of the edge of the bluffs that face the river bottom. It is situated on rolling ground, 150 feet above the river, with no hills worthy of note (except the bluffs referred to). The thermometers are exposed in a Weather Bureau instrument shelter, supported on posts, with bottom of shelter about 4½ feet above the sod. The shelter is 35 feet from the nearest building. The rain gage is exposed in an open space, about 40 feet from the nearest building, with the top of the gage 3 feet above ground. The instruments are of Weather Bureau standard pattern.

Prior to January, 1895, monthly mean temperatures were obtained from readings of the dry thermometer, made at 7 a. m., 2 p. m., and 9 p. m.; after which the daily extremes of temperature were used.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period December 1, 1892, to December 31, 1903; the remaining data are for the full period of observation, June 1, 1884, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max. ima.	Absolute max. imum.	Mean of the min. ima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	45	51	78	33	0	48	38	4.4	8	8.5	4.4	1.1	3.5	W.
January.....	42	51	76	32	-6	48	32	5.0	9	6.0	4.7	0.6	2.5	S.
February.....	43	50	77	32	-11	52	34	4.2	8	6.2	5.6	1.7	5.0	N.
Winter mean.....	43	51		32				13.6	25	20.7	14.7	3.4		N.
March.....	51	62	84	44	7	57	46	6.7	11	8.7	4.4	0.0	0.0	SW.
April.....	62	72	89	50	28	67	57	4.8	8	2.0	16.1	0.0	0.0	S.
May.....	70	82	97	59	38	75	64	3.5	6	1.4	3.5	0.0	0.0	S.
Spring mean.....	61	72		51				15.0	25	12.1	24.0	0.0		S.
June.....	78	88	101	66	42	82	70	5.1	9	1.8	3.7	0.0	0.0	S.
July.....	80	90	104	70	51	82	76	4.2	10	3.6	10.2	0.0	0.0	S.
August.....	78	89	102	69	54	83	76	4.0	7	0.7	6.2	0.0	0.0	SE.
Summer mean.....	79	89		68				13.3	26	6.1	20.1	0.0		S.
September.....	73	85	99	62	37	78	67	3.0	5	1.0	3.7	0.0	0.0	SE.
October.....	61	75	97	50	26	67	56	1.9	4	1.1	0.2	0.0	0.0	S.
November.....	51	62	88	40	15	57	47	3.5	5	2.8	5.4	T.	T.	N.
Fall mean.....	62	74		51				8.4	14	4.9	9.3	T.		N.
Annual mean.....	61	71	104	51	-11			50.3	90	43.8	68.1	3.4	5.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1891	Jan. 25; Dec. 28	None.	1899	Feb. 7-14	June 22; July 15; Aug. 11.
1895	Jan. 1; Feb. 8	Do.	1900	Feb. 17	None.
1896	None.	Aug. 13.	1901	Dec. 15	June 26.
1897	Jan. 28	June 27; July 2; Aug. 3.	1902	Dec. 27	June 13; July 8; Aug. 18.
1898	None.	None.	1903	None.	None.

ALABAMA.

Northern Portion: MORGAN COUNTY. Station: DECATUR.

JOHN B. HINDS, Observer.

[Established by Signal Service in April, 1882. Latitude, 34° 38' N. Longitude, 86° 59' W. Elevation, 573 feet.]

This station is near the center of the town of Decatur, on the south bank of the Tennessee River, in a comparatively flat country. The thermometers are exposed in a latticed shelter of Weather Bureau pattern, secured to the north wall of a brick building, and facing an open yard. The bottom of the shelter is 5 feet above the ground. The rain gage, exposed in the same yard, has a free sky exposure, and is 20 feet from any house or other obstruction. The top of the gage is 4 feet above the ground. The instruments are of Weather Bureau standard pattern. Monthly mean temperatures were obtained from the daily extremes.

Tabulated data are for the following periods: All maximum and minimum temperatures, number of days with 0.01 or more precipitation, snowfall, and wind direction, ten years, from January 1, 1894, to December 31, 1903; the remainder of the data from April 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	52	72	33	0	45	39	3.8	8	2.0	5.5	T.	1.5	NW.
January.....	42	51	77	32	- 3	46	36	5.9	10	6.5	5.6	0.2	1.5	NW.
February.....	44	50	77	31	-12	49	35	5.4	9	1.1	5.3	1.5	4.5	SW.
Winter mean.....	43	51		32				15.1	27	9.6	16.4	1.7		NW.
March.....	53	63	84	43	1	50	48	6.4	11	3.9	4.2	0.5	4.2	SE.
April.....	62	73	92	49	26	67	55	4.6	9	3.6	11.1	0.0	0.0	SE.
May.....	69	84	98	60	37	77	66	3.5	6	1.3	2.7	0.0	0.0	SW.
Spring mean.....	61	73		51				14.5	26	8.8	18.0	0.5		SE.
June.....	78	90	106	66	47	81	72	3.4	10	1.6	2.8	0.0	0.0	W.
July.....	81	93	107	69	56	84	74	4.5	8	5.2	7.5	0.0	0.0	SW.
August.....	80	91	104	68	53	82	74	3.4	9	3.2	6.4	0.0	0.0	SW.
Summer mean.....	80	91		68				11.3	27	10.0	16.7	0.0		SW.
September.....	72	85	99	60	37	77	67	2.8	5	3.6	5.0	0.0	0.0	SW.
October.....	61	75	88	50	33	68	54	2.1	5	4.7	0.3	0.0	0.0	W.
November.....	50	63	80	40	15	58	46	3.7	6	3.4	5.6	T.	T.	SW.
Fall mean.....	61	74		50				8.6	16	11.7	10.9	T.		SW.
Annual mean.....	61	72	107	50	-12			49.5	96	40.1	62.0	2.2	4.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 28, 29.....	None.	1900	Jan. 29; Feb. 1, 18....	Aug. 10, 11.
1895	Jan. 1, 12, 13; Feb. 7-9, 14.	Do.	1901	Dec. 15, 16, 18, 20, 21....	June 22, 23, 25-27, 29; July 3, 4, 11, 12, 14-16, 22, 26-28; Aug. 3.
1896	Jan. 4; Feb. 21.....	Do.	1902	None.....	June 6, 11, 12, 20, 27; July 1-3, 5-9, 14, 16-19; Aug. 4, 5, 18, 19.
1897	Jan. 26-30.....	Jan. 16, 19, 25, 28; July 1-5; Aug. 2-4.	1903	Feb. 17.....	None.
1898	Feb. 3.....	June 10, 11; July 2-4.			
1899	Feb. 9, 10, 12-14; Mar. 7	June 4, 5, 21-23; July 13, 14; Aug. 10-12.			

ALABAMA.

Northeastern Portion: DEKALB COUNTY. Station: VALLEY HEAD.

E. P. NICHOLSON, Observer.

[Established by Signal Service in June, 1885. Latitude, 34° 30' N. Longitude, 85° 30' W. Elevation, 1,031 feet.]

This station is situated in Valley Head, which is in a valley running almost north and south between Lookout Mountain on the east and Sand Mountain on the west. The elevation of the mountains on either side is from 500 to 700 feet above the valley. The thermometers are exposed in a latticed shelter, Weather Bureau pattern, located in an open space at least 30 yards from any house or large tree, and the bottom of the shelter is about 4 feet above the ground. The rain gage is exposed in an open yard, with free sky exposure. The top of the gage is 1 foot above ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period of observation June 1, 1893, to December 31, 1903; the remaining data are for the period June 1, 1885, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	42	51	78	32	1	52	36	4.4	6	3.8	9.4	0.4	4.0	SE.
January.....	39	50	74	32	-7	50	31	5.2	8	5.4	5.0	0.3	2.0	SE.
February.....	43	49	83	27	-17	51	32	5.0	6	4.6	3.1	1.4	6.5	SE.
Winter mean.....	41	50		30				14.6	20	13.8	17.5	2.1		SE.
March.....	50	62	82	42	4	57	45	6.6	9	5.9	9.2	0.1	1.0	SE.
April.....	59	70	88	47	26	64	54	4.9	7	3.4	5.0	0.0	0.0	SE.
May.....	67	81	96	56	33	74	62	4.1	6	2.4	9.3	0.0	0.0	SE.
Spring mean.....	59	71		48				15.6	22	11.7	23.5	0.1		SE.
June.....	74	86	102	64	39	78	70	5.0	8	2.1	3.3	0.0	0.0	SE.
July.....	76	89	100	68	53	81	72	5.1	9	2.0	8.9	0.0	0.0	SE.
August.....	76	89	102	67	51	80	71	4.8	8	2.2	13.8	0.0	0.0	SE.
Summer mean.....	75	88		66				14.9	25	6.3	26.0	0.0		SE.
September.....	71	84	97	61	34	76	66	3.3	4	2.5	3.6	0.0	0.0	SE.
October.....	58	74	91	48	22	66	54	2.8	4	4.0	0.6	T.	T.	SE.
November.....	49	61	79	39	12	57	45	3.2	5	3.4	2.4	T.	T.	SE.
Fall mean.....	59	73		49				9.3	13	9.9	6.6	T.		SE.
Annual mean.....	59	70	102	49	-17			54.4	80	41.7	73.6	2.2	6.5	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 28, 29.....	None.	1900	Jan. 1-3; Feb. 16, 17, 19.	None.
1895	Jan. 1, 13; Feb. 8-10, 13, 14, 17.	Do.	1901	Feb. 24; Dec. 15-21....	July 11.
1896	Jan. 5; Feb. 21.....	Do.	1902	None.....	June 12; July 2, 7, 17, 18; Aug. 4, 5, 14, 19, 20.
1897	Jan. 28-30.....	Do.	1903	Feb. 17.....	None.
1898	Dec. 13.....	Do.			
1899	Feb. 9, 11-14; Mar. 7..	Do.			

ALABAMA.

North Central Portion: BLOUNT COUNTY. Station: ONEONTO.

AQUILLA J. KETCHUM, Observer.

[Established by U. S. Weather Bureau in September, 1894. Latitude, 33° 54' N. Longitude, 86° 30' W. Elevation, 857 feet.]

This station is on the western edge of the town of Oneonto, at the eastern base of Red Mountain, and about 1½ miles west of Raccoon Mountains. The ridges to the east and west rise several hundred feet above the valley, the elevation of Red Mountain above the valley being about 500 feet. Thermometers are exposed in a latticed shelter of Weather Bureau pattern, located in an open space, the shelter being supported on posts, with its bottom 4 feet above ground. The rain gage is exposed in an open garden, 50 feet from any obstruction, and the top of the gage is 3 feet above ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

Tabulated data are for the period of observation September 1, 1894, to December 31, 1903, except that in some instances part of the year 1894 has been neglected.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	43	54	70	32	1	47	38	4.3	8	0.6	10.2	T.	1.0	N.
January.....	43	52	73	30	9	49	40	5.2	8	1.8	6.8	T.	T.	N.
February.....	42	50	71	29	-15	49	35	6.4	8	4.8	4.3	1.7	6.0	N.
Winter mean.....	43	52		30				15.9	25	7.2	21.3	1.7		N.
March.....	54	63	81	41	4	58	49	6.5	11	6.9	8.7	T.	1.0	SW.
April.....	60	71	92	48	24	67	55	4.9	6	3.1	5.5	0.0	0.0	S.
May.....	70	82	94	58	38	74	67	4.8	6	4.6	8.0	0.0	0.0	S.
Spring mean.....	61	72		49				16.2	26	14.6	22.2	T.		S.
June.....	76	85	97	64	45	78	70	4.6	10	4.4	3.2	0.0	0.0	N.
July.....	78	89	103	67	53	80	77	6.2	12	9.5	4.2	0.0	0.0	N.
August.....	78	89	101	67	50	81	75	4.1	11	2.8	7.4	0.0	0.0	NE.
Summer mean.....	77	88		66				14.9	30	16.7	14.8	0.0		N.
September.....	73	84	99	60	34	77	68	2.1	5	1.1	4.2	0.0	0.0	NE.
October.....	61	74	90	48	26	65	58	2.2	4	0.8	0.7	T.	T.	N.
November.....	50	61	79	38	11	56	45	2.4	6	4.3	2.0	T.	T.	N.
Fall mean.....	61	73		49				6.7	15	6.2	6.9	T.		N.
Annual mean.....	61	71	103	49	-15			53.7	■	44.7	65.2	1.7	6.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD SEPTEMBER 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1895	Feb. 17.....	None.	1900	Jan. 2; Feb. 1, 17, 18..	None.
1896	.....	July 29-31.	1901	Dec. 15-18, 20, 21.....	Do.
1897	.....		1902	Jan. 14; Dec. 27.....	Do.
1898	Dec. 14.....	None.	1903	Feb. 17, 19.....	Do.
1899	Feb. 8, 12-14; Mar. 7..	July 16.			

ALABAMA.

North Central Portion: JEFFERSON COUNTY. Station: BIRMINGHAM.

WILLIAM A. MITCHELL, Observer.

[Established by Signal Service in April, 1882. Latitude, 33° 32' N. Longitude, 86° 37' W. Elevation, 608 feet.]

This station is in the middle of the flat or business portion of the city of Birmingham, which is located in about the center of what is known as Jones Valley. The valley is about 2 miles wide and has a general trend from northeast to southwest. This valley is formed by two ranges of hills, those to the southeast being about 250 feet above the valley and those to the northwest about half as high. The instruments are exposed on the roof of a 9-story building at the corner of Twenty-first street and Third avenue. The thermometers are 136 feet above ground; the rain gage 128 feet above ground; the anemometer, 144 feet; wind vane, 145 feet.

Previous to the establishment of the present office September 1, 1903, the instruments, consisting of maximum, minimum, and dry-bulb thermometers, and a rain gage, were exposed on the slightly-sloping tin roof of a 3-story building about two blocks south of present location.

Monthly mean temperatures were obtained from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period January 1, 1893, to December 31, 1903. All other data are for the full period April 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.		Greatest depth in 24 hours.
December.....	48	56	73	37	5	51	35	5.1	8	1.1	4.0	T.	T.	NW.
January.....	46	55	75	38	10	51	38	5.7	10	3.4	5.2	T.	T.	NW.
February.....	49	55	81	38	-10	53	40	4.2	10	4.4	6.2	0.6	5.0	S.
Winter mean....	48	55	75	38	5	51	38	5.0	28	8.9	15.4	0.6	5.0	NW.
March.....	57	67	87	49	12	64	48	6.4	11	4.4	6.8	T.	T.	SE.
April.....	64	74	90	53	28	70	58	6.2	8	4.9	13.1	0.0	0.0	NW.
May.....	73	83	97	64	40	77	65	3.9	7	3.2	2.3	0.0	0.0	SE.
Spring mean....	65	75	90	55	26	67	57	4.0	26	12.5	22.2	T.	0.0	SE.
June.....	79	89	100	68	49	85	73	4.8	9	4.3	12.1	0.0	0.0	W.
July.....	81	91	104	73	59	84	73	5.4	11	3.4	7.9	0.0	0.0	W.
August.....	80	91	101	72	61	84	76	5.5	11	2.3	2.0	0.0	0.0	SW.
Summer mean....	80	90	101	71	56	84	76	5.2	31	10.0	22.0	0.0	0.0	W.
September.....	75	86	100	65	42	79	72	2.8	5	0.7	3.8	0.0	0.0	SE.
October.....	65	76	93	55	31	72	63	3.0	6	1.3	7.2	0.0	0.0	SE.
November.....	54	65	84	45	18	60	50	3.8	8	3.8	5.8	T.	T.	N.
Fall mean.....	65	76	90	55	31	72	63	3.0	19	5.8	16.8	T.	0.0	SE.
Annual mean....	64	74	90	55	-10	77	65	56.8	104	37.2	76.4	0.6	5.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	None.	None.	1899	Feb. 12-14.	June 22.
1895	do.	Do.	1900	None.	Aug. 10.
1896	do.	July 30, 31; Aug. 12.	1901	Dec. 15, 16, 18, 20.	July 11; 12.
1897	Jan. 28.	June 23, 27; Aug. 28; Sept. 16.	1902	None.	July 6-8; Aug. 14, 15 18-20.
1898	None.	None.	1903	do.	None.

ALABAMA.

Northeastern Portion: CALHOUN COUNTY. Station: ANNISTON.

P. M. WATSON, Observer.

[Established by U. S. Weather Bureau at Oxanna, a suburb of Anniston, in September, 1891; carried as "Oxanna" from that date until February 1, 1903, since which it has been carried as "Anniston." Latitude, 33° 39' N. Longitude, 85° 49' W. Elevation, 650 feet.]

This station, about 4 miles north of Anniston proper, is in a valley. A wide creek, running east and west, is just south of the station, and the highest mountains in the State are about 4 miles east, running north and south. The thermometers are exposed in a standard Weather Bureau shelter, about 4 feet above ground. The rain gage is exposed in an open yard, 40 feet from any building, with top of gage about 3 feet above ground. The instruments are of Weather Bureau standard pattern. Prior to November, 1895, monthly mean temperatures were obtained from readings of the exposed thermometer, made at 7 a. m., 2 p. m., and 9 p. m., after which the daily extremes of temperature were used.

Tabulated data are for the following periods: Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind January 1, 1894, to December 31, 1903; the remainder of the data, September 1, 1891, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	44	52	75	34	7	49	38	3.7	7	4.7	2.3	0.6	2.0	SW.
January.....	44	52	73	35	7	47	36	5.2	9	4.1	7.1	0.4	2.0	SW.
February.....	44	52	75	35	-10	50	34	4.9	9	3.8	2.1	1.7	6.0	NW.
Winter mean.....	44	52	.....	35	.....	.....	.....	13.8	25	12.6	11.5	2.7	.....	SW.
March.....	55	64	84	45	12	57	50	5.4	9	3.5	6.9	0.3	1.0	SW.
April.....	61	71	88	49	27	67	54	4.6	9	2.6	3.8	0.0	0.0	SW.
May.....	69	80	94	59	36	74	65	4.0	8	2.7	10.6	0.0	0.0	SW.
Spring mean.....	62	72	.....	51	.....	.....	.....	14.0	26	8.8	21.3	0.3	.....	SW.
June.....	76	87	100	66	44	80	70	4.0	7	4.1	7.6	0.0	0.0	SW.
July.....	78	89	102	69	56	82	76	5.3	9	4.2	4.1	0.0	0.0	SW.
August.....	78	88	103	69	56	83	75	3.9	11	1.0	5.1	0.0	0.0	SW.
Summer mean.....	77	88	.....	68	.....	.....	.....	13.2	22	9.3	16.8	0.0	.....	SW.
September.....	73	84	98	62	36	77	69	2.4	5	2.5	2.3	0.0	0.0	SE.
October.....	63	76	92	52	16	69	60	3.0	6	1.5	2.7	0.0	0.0	SW.
November.....	51	62	82	41	16	55	48	2.7	5	3.8	1.5	0.0	0.0	SW.
Fall mean.....	62	74	.....	52	.....	.....	.....	8.1	16	7.8	6.5	0.0	.....	SW.
Annual mean.....	62	72	103	51	-10	.....	.....	49.1	89	38.5	56.1	3.0	6.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 25; Dec. 29, 30...	None.	1900	None.	None.
1895	Jan. 1; Feb. 8, 9, 17...	Do.	1901	Dec. 15, 16, 18, 20, 21...	Do.
1896	None.	Aug. 1, 11, 12.	1902	None.	June 12; July 2-4, 7; Aug. 4-6, 14, 15, 18-21.
1897	Jan. 28-30.	None.			
1898	None.	Do.	1903	.....do.....	None.
1899	Feb. 12-14.	July 16.			

ALABAMA.

West-Central Portion: TUSCALOOSA COUNTY. Station: TUSCALOOSA.

W. S. WYMAN, Jr., Observer.

[Established by Signal Service in April, 1882; discontinued in September, 1889; reestablished in December, 1890. Latitude, 33° 12' N. Longitude, 87° 32' W. Elevation, 230 feet.]

This station is in the city of Tuscaloosa, about three-eighths of a mile from its northern limits, and about the same distance from the Black Warrior River, on a plateau about 225 feet above sea level. The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern, which is located in an open space about 18 yards from the nearest house, with its bottom about 6 feet above ground. The rain gage is exposed in an open space on the bank of the river, with free sky exposure, and its top 3 feet above ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period of observation, April 1, 1893, to December 31, 1903; the remaining data are for the period April, 1882, to September, 1889, and December, 1890, to December, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	46	54	75	32	9	55	39	4.8	10	1.1	4.0	0.2	2.0	N.
January.....	44	54	78	34	11	50	37	5.6	11	4.1	3.6	T.	0.5	N.
February.....	46	53	83	32	- 7	58	36	4.8	11	4.1	5.6	1.0	5.0	S.
Winter mean.....	45	54	.....	33	.....	.....	.....	15.2	32	9.3	13.2	1.2	.....	N.
March.....	56	67	88	44	17	60	50	6.0	12	5.2	6.1	0.0	0.0	N.
April.....	64	75	94	50	30	70	57	5.0	9	4.7	15.7	0.0	0.0	S.
May.....	73	85	100	61	40	78	69	3.2	7	3.5	1.4	0.0	0.0	S.
Spring mean.....	64	76	.....	52	.....	.....	.....	14.2	28	13.4	23.2	0.0	.....	S.
June.....	79	90	103	68	48	83	72	4.8	9	7.0	13.5	0.0	0.0	S.
July.....	82	93	106	71	59	84	78	4.8	12	4.0	5.2	0.0	0.0	S.
August.....	80	92	105	71	59	85	76	3.5	10	1.2	0.8	0.0	0.0	S.
Summer mean.....	80	92	.....	70	.....	.....	.....	13.1	31	12.2	19.5	0.0	.....	S.
September.....	75	88	101	64	40	80	68	2.2	5	0.6	3.3	0.0	0.0	E.
October.....	63	76	92	50	30	70	58	1.8	5	1.7	5.4	0.0	0.0	N.
November.....	53	64	88	40	19	59	47	3.0	7	2.8	4.6	T.	T.	N.
Fall mean.....	64	76	.....	51	.....	.....	.....	7.0	17	5.1	13.3	T.	.....	N.
Annual mean.....	63	74	106	51	- 7	.....	.....	49.5	108	40.0	69.2	1.2	5.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 27, 29, 31.....	June 29, 30; July 1-4.	1899	Feb. 12-14.....	June 23; July 17.
1895	Feb. 7, 8.....	None.	1900	None.....	Aug. 23.
1896	None.....	July 26, 29-31; Aug. 1-7, 11-13, 16, 17, 21-23.	1901	Dec. 15-17, 20-22.....	June 18, 27; July 12, 13, 15, 16; Aug. 1.
1897	.....do.....	June 23, 26-28, 30; July 1; Aug. 3.	1902	None.....	June 7, 13, 14, 17-19, 21, 26; July 1-11, 17, 18, 20; Aug. 6, 11-22.
1898	.....do.....	None.	1903	.....do.....	July 23.

ALABAMA.

East-Central Portion: COOSA COUNTY. Station: GOODWATER.

FLORENCE DEIGNAN, Observer.

[Established by U. S. Weather Bureau in July, 1895. Latitude, 33° 04' N. Longitude, 86° 03' W. Elevation, 826 feet.]

This station is situated a little to the south of the center of the town of Goodwater. There are hills on all sides of the station, though they do not rise more than 200 feet above its level. The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern, located about 20 yards from the nearest building, with the bottom of the shelter 4 feet above ground. The rain gage is exposed in an open space, with free sky exposure, and the top of the gage is 3 feet above the ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	45	55	76	32	9	52	39	3.8	6	1.0	3.1	0.1	0.5	S.
January.....	45	54	84	32	9	52	41	4.1	7	3.2	3.3	0.1	0.5	S.
February.....	43	54	77	32	— 8	49	38	6.8	8	4.3	16.7	1.5	7.0	S.
Winter mean.....	44	54	.....	32	.....	.....	.....	14.7	21	8.5	23.1	1.7	.....	S.
March.....	56	65	87	44	14	60	50	6.5	9	5.4	6.9	0.0	0.0	N.
April.....	63	73	92	49	26	69	56	4.2	7	3.9	4.4	0.0	0.0	N.
May.....	71	86	100	60	40	77	68	2.8	6	0.1	7.0	0.0	0.0	N.
Spring mean.....	63	75	.....	51	.....	.....	.....	13.5	22	12.4	18.3	0.0	.....	N.
June.....	78	91	103	66	48	83	72	3.9	9	3.2	4.9	0.0	0.0	N.
July.....	81	92	105	69	56	84	79	5.1	11	4.2	2.4	0.0	0.0	S.
August.....	80	92	105	69	59	84	77	4.6	10	3.6	3.4	0.0	0.0	N.
Summer mean.....	80	92	.....	68	.....	.....	.....	13.6	30	11.0	10.9	0.0	.....	N.
September.....	76	88	102	62	37	80	71	1.8	5	0.9	1.9	0.0	0.0	NW.
October.....	64	77	97	51	31	69	61	2.8	4	0.0	1.5	0.0	0.0	NW.
November.....	53	66	87	40	22	59	48	2.5	6	1.8	1.1	T.	T.	S.
Fall mean.....	64	77	.....	51	.....	.....	.....	7.1	15	2.7	4.5	T.	.....	NW.
Annual mean.....	63	74	105	50	— 8	.....	.....	48.9	83	34.6	56.6	1.7	7.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JULY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1895	.....	None.	1900	None.....	Aug 10, 11.
1896	None.....	Jun 30; July 1, 31; Aug. 1, 12, 13, 18.	1901	Dec. 21, 22.....	June 22; July 12.
1897	Jan. 28, 29.....	June 12, 27-30; July 1; Aug. 2-4; Sept. 17.	1902	None.....	June 12, 20, 30; July 1-8; Aug. 10, 14, 15, 19-21.
1898	None.....	July 15.	1903	...do.....	None.
1899	Feb. 13, 14.....	June 5, 9, 22, 23; July 15-18; Aug. 11-14.			

ALABAMA.

West-Central Portion: HALE COUNTY. Station: GREENSBORO.

W. E. W. YERBY, Observer.

[Established by Smithsonian Institution in January, 1855. Latitude, 32° 42' N. Longitude, 87° 35' W. Elevation, 220 feet.]

This station is near the northern limits of the town of Greensboro, and its surroundings are much like the open country, which, in its vicinity, is generally flat or rolling, with no hills worthy of note near the station. The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern, the shelter being in an open space, with bottom about 5 feet above ground. The rain gage is exposed in an open yard, with free sky exposure, and top of gage about 3 feet above ground. The instruments are of Weather Bureau standard pattern.

Prior to January, 1895, monthly mean temperatures were obtained from readings of the dry thermometer made at 7 a. m., 2 p. m., and 9 p. m., after which the daily extremes of temperature were used.

The record is much broken prior to January, 1888. The maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction data are for the period March 1, 1893, to December 31, 1903; the remaining tabulated data are from all available observations, covering the period January 1, 1855, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average d pth.	Greatest depth in 24 hours.	
December.....	49	56	75	39	10	60	42	4.8	8	2.2	2.2	0.3	2.0	N.
January.....	45	54	78	36	12	57	37	5.2	9	5.4	4.4	0.2	1.0	N.
February.....	50	54	79	35	— 5	60	37	4.7	9	2.0	4.4	1.3	10.0	S.
Winter mean.....	48	55	.....	37	.....	.....	.....	14.7	26	9.6	11.0	1.8	.....	N.
March.....	55	66	85	46	21	61	51	5.2	9	1.5	11.2	0.0	0.0	S.
April.....	64	73	90	52	31	69	56	4.2	7	6.6	2.2	0.0	0.0	S.
May.....	72	83	95	65	42	78	68	3.7	7	0.6	2.4	0.0	0.0	S.
Spring mean.....	64	74	.....	54	.....	.....	.....	13.1	23	8.7	15.8	0.0	.....	S.
June.....	78	89	100	69	50	83	73	4.0	9	3.4	4.1	0.0	0.0	S.
July.....	80	90	105	71	60	83	75	3.6	10	4.5	3.4	0.0	0.0	S.
August.....	79	90	100	72	59	84	77	4.4	10	3.0	9.3	0.0	0.0	S.
Summer mean.....	79	90	.....	71	.....	.....	.....	12.0	29	10.9	16.8	0.0	.....	S.
September.....	75	86	96	65	45	78	71	2.8	5	1.9	7.9	0.0	0.0	SE.
October.....	64	76	92	54	33	70	59	2.1	5	0.4	4.4	0.0	0.0	N.
November.....	55	65	84	43	21	65	45	3.8	6	4.1	3.1	T.	T.	N.
Fall mean.....	65	76	.....	54	.....	.....	.....	8.7	16	6.4	15.4	T.	.....	N.
Annual mean.....	64	74	105	54	— 5	.....	.....	48.5	94	35.6	59.0	1.8	10.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 26-29, 31.	June 30.	1899	Jan. 31; Feb. 1, 7-10, 12-14; Mar. 7.	None.
1895	Jan. 1, 12-14; Feb. 6-9, 12-14, 16, 17; Dec. 3-5.	None.	1900	Jan. 1-3, 28, 29, 31; Feb. 1, 2, 16-18.	Do.
1896	Jan. 3-5; Feb. 21, 22...	July 31.	1901	Dec. 14-21.....	June 27, 28; July 11, 12, 15.
1897	None.....	Aug. 3.	1902	Jan. 12, 13; Feb. 2, 3, 10, 11; Dec. 26, 27.	July 1-3, 7, 8; Aug. 19.
1898	Jan. 1, 2; Feb. 1-3; Dec. 10, 11.	None.	1903	Feb. 16; Dec. 27.....	None.

ALABAMA.

Southwestern Portion: CHOCTAW COUNTY. Station: PUSHMATAHA.

C. C. BROWN, Observer.

[Established by Signal Service June, 1891. Latitude 32° 12' N. Longitude 88° 18' W. Elevation, unknown.]

This station is located in the town of Pushmataha, in the northern part of Choctaw County, about 20 miles west of the Tombigbee River, and 5 miles east of the State line in a country whose surface is gently undulating. The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern on the north side of a house, under the edge of a porch, with bottom of the shelter about 7 feet from ground. The rain gage is exposed in an open yard, 40 feet from any obstruction, with the top of the gage 2 feet above the ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period June 1, 1893, to December 31, 1903; the remaining data are for the period June 1, 1891, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	48	57	77	36	9	53	43	4.3	6	3.5	4.7	0.2	1.4	NW.
January.....	46	57	78	38	15	52	44	5.6	9	7.4	3.2	0.4	2.0	NW.
February.....	49	58	80	37	— 7	54	39	6.4	7	6.9	9.1	1.7	5.0	NW.
Winter mean.....	48	57	.....	37	.....	.....	.....	16.3	22	17.8	17.0	2.3	.....	NW.
March.....	58	69	87	48	21	64	53	6.0	8	3.9	4.7	T.	T.	SW.
April.....	64	75	88	53	28	69	59	5.1	5	1.6	13.9	0.0	0.0	SW.
May.....	73	85	97	63	43	78	70	4.3	6	3.4	3.7	0.0	0.0	NW.
Spring mean.....	65	76	.....	55	.....	.....	.....	15.4	19	8.9	22.3	T.	.....	SW.
June.....	79	90	102	69	51	82	74	4.7	5	2.4	14.7	0.0	0.0	SW.
July.....	81	92	105	71	60	83	77	4.0	9	7.0	1.4	0.0	0.0	SW.
August.....	81	91	104	71	55	84	78	4.1	11	2.3	1.7	0.0	0.0	SW.
Summer mean.....	80	91	.....	70	.....	.....	.....	15.7	29	12.2	17.8	0.0	.....	SW.
September.....	75	87	97	66	30	80	70	2.7	4	0.2	4.7	0.0	0.0	SW.
October.....	65	77	98	52	30	70	61	2.0	4	0.7	4.7	0.0	0.0	NW.
November.....	55	66	86	44	19	58	50	3.0	5	3.3	2.	0.0	0.0	NW.
Fall mean.....	65	77	.....	54	.....	.....	.....	7.4	13	4.2	11.7	0.0	.....	NW.
Annual mean.....	64	75	106	54	— 7	.....	.....	52.8	83	43.1	68.8	2.3	5.0	NW. ^a

^a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28, 29 ...	June 29, 30; July 1, 2, 4.	1900	Jan. 2-4, 30; Feb. 1	None.
1895	Jan. 1, 13, 14; Feb. 7, 8, 13-15, 17, 24; Dec. 3, 4, 6, 14, 31.	None.	1901	Feb. 21, 24; Mar. 7; Dec. 15-18, 20-22.	June 10; July 12-15.
1896	Jan. 4, 5; Dec. 28	July 30, 31; Aug. 12, 13, 17.	1902	Jan. 13, 14; Feb. 3, 11, 18; Dec. 27, 28.	June 16, 18; July 7; Aug. 15.
1897	Jan. 27-30	June 23, 29, 30; July 1; Aug. 1-3, 5, 6, 29.	1903	Jan. 13; Feb. 17, 18; Dec. 3, 7, 27.	None.
1898	Jan. 2; Dec. 10, 11, 14.	July 2.			
1899	Jan. 2; Feb. 1, 8, 9, 12-14.	None.			

ALABAMA.

South-Central Portion: MONTGOMERY COUNTY. Station: MONTGOMERY.

FRANK P. CHAFFEE, Section Director.

[Established by Signal Service September, 1872. Latitude, 32° 23' N. Longitude, 86° 18' W. Elevation, 196 feet.]

This station is located in the United States court-house and post-office building, about the middle of the city of Montgomery. A chain of low hills curve like a horseshoe to the east, south, and west, with the Alabama River about one-half mile to the north, and the country then comparatively flat to a range of hills nearly 15 miles north of the station. The elevation of the hills to the south, east, and west probably does not exceed 100 feet.

The thermometers are exposed in a standard Weather Bureau shelter on roof of office building. The shelter is 10 feet above a platform supported from north side of a slanting slate roof. The thermometers are 10 feet above the platform and 100 feet above ground.

The rain gage is exposed on a flat roof, 41 feet to the north of thermometer shelter and 70 feet above ground. The top of rain gage is 3.4 feet above the roof.

Present location has been occupied since April 1, 1895; for location of office prior to that date, see Table 28, page 274, volume 2, Annual Report of Chief of Weather Bureau, 1900-1901.

Tabulated data are from the following periods of observation: Number of days with maximum above 90° and with minimum below 32°, nineteen years, 1885 to 1903; snowfall data, nineteen years, 1885 to 1903; humidity, fifteen years, 1889 to 1903. Remainder of data is from the full period of observation, thirty-one years, September 5, 1872, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	49	59	79	40	8	59	42	4.5	11	4.2	4.7	0.5	11.0	80	2.64	75	3.39	NW.
January.....	48	57	79	39	5	58	41	5.0	12	7.2	17.8	0.4	3.5	80	2.45	70	2.16	SW.
February.....	51	60	83	42	— 5	60	40	5.0	10	2.0	3.0	0.8	4.0	81	2.76	67	3.14	N.
Winter mean.....	49	59	.....	40	.....	.....	.....	14.5	33	13.4	25.5	1.7	.....	80	2.42	71	3.16	NW.
March.....	58	68	87	48	21	63	52	6.3	11	3.6	11.9	T.	T.	81	3.30	63	3.74	NW.
April.....	65	76	92	55	30	70	60	4.5	9	8.2	1.1	0.0	0.0	77	4.14	55	4.39	SW.
May.....	74	84	98	63	43	78	71	3.8	9	2.6	2.6	0.0	0.0	76	5.10	56	5.41	SW.
Spring mean.....	66	76	.....	55	.....	.....	.....	14.6	29	14.4	15.6	T.	.....	78	4.50	58	4.51	SW.
June.....	80	89	106	70	48	83	76	4.3	12	5.0	3.8	0.0	0.0	80	7.15	61	6.82	SW.
July.....	82	92	107	73	61	86	79	4.6	11	0.9	0.6	0.0	0.0	82	7.12	67	7.79	SW.
August.....	81	90	103	72	58	84	78	4.6	11	2.1	7.8	0.0	0.0	87	8.14	73	8.23	SE.
Summer mean.....	81	90	.....	72	.....	.....	.....	13.5	34	8.0	21.2	0.0	.....	83	7.77	67	7.61	SW.
September.....	76	86	99	66	45	80	74	2.7	8	0.2	2.7	0.0	0.0	83	6.41	63	6.47	E.
October.....	66	76	96	56	31	72	61	2.3	6	2.0	0.4	0.0	0.0	82	4.40	60	4.64	E.
November.....	56	66	85	46	21	60	50	3.2	8	1.7	4.4	0.0	0.0	85	3.55	73	4.06	E.
Fall mean.....	66	76	.....	56	.....	.....	.....	8.2	22	3.9	7.5	0.0	.....	83	4.72	65	5.06	E.
Annual mean.....	66	75	107	56	— 5	.....	.....	50.8	118	39.8	69.8	1.7	11.0	81	4.85	65	5.09	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28, 29	June 29.	1899	Feb. 8, 9, 12-14; Mar. 7	June 21, 22.
1895	Jan. 1, 13, 14; Feb. 7-9, 13, 14; Dec. 4, 6.	None.	1900	Jan. 2, 3, 30; Feb. 1, 17, 18.	None.
1896	Jan. 4, 5; Feb. 21	July 30, 31.	1901	Feb. 24; Dec. 15-18, 20, 21.	July 11, 12, 14.
1897	Jan. 27-30	June 23; Aug. 1-3.	1902	Feb. 11; Dec. 26, 27	July 7; Aug. 20, 21.
1898	Jan. 1, 2; Feb. 2; Dec. 14.	July 1	1903	Feb. 17	None.

ALABAMA.

Eastern Portion: LEE COUNTY. Station: OPELIKA.

ANDREW H. READ, Jr., Observer.

[Established by Signal Service April, 1882. Latitude, 32° 38' N. Longitude, 85° 25' W. Elevation, 817 feet.]

This station is located in the northwest portion of the city of Opelika. The surrounding country is open and hilly, though there are no hills worthy of special note near the station. The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern, the bottom of which is about 5 feet above ground. The rain gage is exposed in an open yard with free sky exposure and top of gage 3 feet above ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period of observation, June 1, 1893, to December 31, 1903. The remaining data are for the period April 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	47	56	78	36	9	53	40	4.4	7	1.3	7.2	0.6	3.0	N.
January.....	46	55	74	36	10	50	42	4.7	8	0.5	3.5	0.3	3.0	N.
February.....	46	55	78	38	— 7	57	40	5.3	8	3.9	10.9	1.5	6.0	W.
Winter mean.....	46	55	.....	37	.....	.....	.....	14.4	23	11.7	21.6	2.4	.....	N.
March.....	56	66	88	45	16	60	51	5.2	8	2.5	6.1	T.	T.	E.
April.....	63	73	92	52	32	70	56	3.6	6	1.3	4.5	0.0	0.0	W.
May.....	72	84	98	61	39	77	68	3.4	5	1.6	0.1	0.0	0.0	W.
Spring mean.....	64	74	.....	53	.....	.....	.....	12.2	19	5.4	10.7	T.	.....	W.
June.....	78	90	100	68	49	86	73	3.8	7	1.9	9.9	0.0	0.0	W.
July.....	80	91	101	70	60	83	76	5.3	10	5.5	4.6	0.0	0.0	W.
August.....	79	90	104	70	58	82	76	4.4	8	1.4	4.0	0.0	0.0	W.
Summer mean.....	79	90	.....	69	.....	.....	.....	13.5	25	8.8	18.5	0.0	.....	W.
September.....	74	86	98	65	46	80	70	2.8	4	1.9	6.2	0.0	0.0	E.
October.....	64	76	94	54	32	70	59	3.1	5	1.0	8.3	T.	T.	NW.
November.....	54	65	81	45	20	60	48	3.1	5	5.1	7.8	T.	T.	NW.
Fall mean.....	64	76	.....	55	.....	.....	.....	9.0	14	8.0	22.3	T.	.....	NW.
Annual mean.....	63	74	104	53	— 7	.....	.....	49.1	81	33.9	73.1	2.4	6.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Feb. 13; Dec. 28-30...	None.	1900	Jan. 1-4, 26, 29; Feb. 1, 17-19.	None.
1895	Jan. 12, 13; Feb. 7-10, 14-16.	Do.	1901	Feb. 20, 21, 24, 25; Mar. 6; Dec. 15-22.	Do.
1896	Jan. 1, 2; Feb. 17, 18, 21; Dec. 25.	Do.	1902	Jan. 13, 14; Feb. 5, 11, 12; Dec. 26-28.	July 1, 2, 6, 7.
1897	Jan. 27-30.....	June 12, 13, 18, 19, 24, 28; July 1, 24, 30; Aug. 1-5.	1903	Jan. 9, 13, 14; Dec. 27.	None.
1898	Jan. 3; Feb. 2, 4.....	July 2, 3.			
1899	Jan. 28; Feb. 8-15; Mar. 7, 8; Dec. 26, 30.	June 22.			

ALABAMA.

Southeastern Portion: BARBOUR COUNTY. Station: EUFAULA.

JOHN B. WHITLOCK, Observer.

[Established by Signal Service in May, 1884. Latitude, 31° 55' N. Longitude, 85° 03' W. Elevation, 200 feet.]

This station is located in the northeastern part of the city of Eufaula, in a comparatively flat country. The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern, secured to the north side of a wooden building, with bottom of shelter about 4 feet above ground. The rain gage is exposed in an open yard, with free sky exposure. The top of gage is 3 feet above the ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes of temperature.

Tabulated data are for the following periods of observation: All maximum and minimum temperature data, number of days with 0.01 precipitation, snowfall, and wind direction from April 1, 1893, to December 31, 1903. The remaining data are for the full period May 1, 1884, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	49	58	82	37	10	55	41	4.0	7	3.4	5.1	0.0	0.0	N.	
January.....	47	58	81	37	12	55	40	3.8	8	3.5	4.3	0.1	3.0	N.	
February.....	50	59	81	38	- 4	59	42	6.7	8	5.6	7.2	0.5	4.5	N.	
Winter mean.....	49	58	.....	37	.....	.....	.....	14.5	23	12.5	16.6	0.6	.....	N.
March.....	59	69	88	48	21	63	55	6.1	8	3.9	7.8	0.0	0.0	S.	
April.....	66	75	92	52	30	73	58	2.7	6	2.3	3.7	0.0	0.0	S.	
May.....	74	87	101	63	42	78	70	3.2	6	3.1	5.7	0.0	0.0	E.	
Spring mean.....	66	77	.....	54	.....	.....	.....	12.0	20	9.3	17.2	0.0	.....	S.
June.....	79	92	101	69	52	82	75	3.9	10	3.7	2.6	0.0	0.0	S.	
July.....	81	93	104	71	56	84	78	6.7	12	10.2	3.1	0.0	0.0	S.	
August.....	80	91	103	72	63	85	77	5.6	11	1.9	10.1	0.0	0.0	E.	
Summer mean.....	80	92	.....	71	.....	.....	.....	16.2	33	15.8	15.8	0.0	.....	S.
September.....	76	88	100	66	39	81	71	3.0	5	2.0	11.4	0.0	0.0	E.	
October.....	66	78	94	53	30	70	61	2.5	6	2.7	1.9	0.0	0.0	E.	
November.....	54	67	83	45	23	61	50	2.9	6	4.0	1.1	0.0	0.0	N.	
Fall mean.....	65	78	.....	55	.....	.....	.....	8.4	17	8.7	14.4	0.0	.....	E.
Annual mean.....	65	77	104	54	- 4	.....	.....	51.1	93	46.3	64.0	0.6	4.5	E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28, 29.....	None.	1900	Jan. 1-5, 30, 31; Feb. 1, 2, 18-20.	July 6-9; Aug. 10-15, 19-23.
1895	Jan. 13; Feb. 8, 9; Dec. 4, 6, 7.	Do.	1901	Feb. 23; Mar. 7; Dec. 15-22.	June 23, 25; July 11, 12, 26, 30.
1896	Jan. 5.....	Record incomplete.	1902	Jan. 13-15; Dec. 27, 28.	June 29, 30; July 1-7, 10, 11; Aug. 15, 20, 21.
1897	Jan. 27, 28, 30.....	June 19, 20, 24, 28; July 1-3, 24, 25; Aug. 2, 7.	1903	Jan. 13; Dec. 26.....	None.
1898	Jan. 2-4; Feb. 2, 3....	July 1, 2.			
1899	Feb. 8-10, 12-15; Mar. 7; Dec. 8.	June 15-17, 22, 23; Aug. 11.			

ALABAMA.

Southern Portion: CONECUH COUNTY. Station: EVERGREEN.

C. HAWKINS, Observer.

[Established by Signal Service in May, 1884. Latitude, 31° 25' N. Longitude, 86° 37' W. Elevation, unknown.]

This station is near the southern edge of the town of Evergreen. The surrounding country is flat, the station being near the southern edge of the "Black Belt." The thermometers are exposed in a latticed shelter of Weather Bureau standard pattern, secured to the north wall of the railroad depot, with the bottom of the shelter about 5 feet above ground. The rain gage is exposed on an open platform, with free sky exposure. The top of the gage is 4 feet above the ground. The instruments are of Weather Bureau standard pattern.

Monthly mean temperatures were obtained from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind direction are for the period April 1, 1893, to December 31, 1903; the remaining data are for the whole period of observation May 1, 1884, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In. T.	In. T.	
December.....	50	60	77	36	13	52	46	3.4	6	4.9	3.0			NW.
January.....	48	59	74	36	13	51	44	3.1	10	4.1	4.7	0.4	3.0	N.
February.....	51	58	80	36	0	53	41	6.6	7	3.6	8.2	1.0	5.0	NW.
Winter mean.....	50	59		36				13.1	23	12.6	15.9	1.4		NW.
March.....	58	70	85	48	23	63	55	5.6	8	3.0	5.9	0.0	0.0	SE.
April.....	65	76	92	52	30	69	53	2.7	5	T.	3.2	0.0	0.0	S.
May.....	72	85	96	61	42	76	67	2.7	6	0.6	4.0	0.0	0.0	NW.
Spring mean.....	65	77		54				11.0	19	3.6	13.1	0.0		S.
June.....	78	89	107	68	54	83	75	6.4	9	4.2	8.5	0.0	0.0	SW.
July.....	81	90	105	71	59	85	77	6.4	10	10.5	8.8	0.0	0.0	SW.
August.....	80	90	100	71	59	84	76	5.2	9	1.5	3.4	0.0	0.0	SW.
Summer mean.....	80	90		70				18.0	28	16.2	20.7	0.0		SW.
September.....	76	87	100	64	40	81	71	3.0	5	0.1	1.4	0.0	0.0	W.
October.....	65	77	90	53	30	74	61	2.2	4	2.4	3.4	0.0	0.0	N.
November.....	56	69	85	43	22	60	52	3.7	5	4.0	2.8	0.0	0.0	N.
Fall mean.....	66	78		54				8.9	14	6.5	7.6	0.0		N.
Annual mean.....	65	76	105	53	0			51.0	84	38.9	57.3	1.4	5.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28-30.....	None.	1899	Feb. 9, 10, 12-15.....	July 15-20.
1895	Jan. 1, 12-14; Feb. 7-9, 13, 14, 17, 18; Dec. 4-7, 14, 31.	Do.	1900	None.....	None.
1896	Jan. 1, 4-6; Dec. 26....	Aug. 1.	1901	Dec. 14-21.....	July 11, 13, 14.
1897	None.....	None.	1902	Jan. 12, 13; Dec. 26, 27.	June 18, 20, 26, 27, 30; July 1, 2, 6, 7.
1898	Jan. 2, 3; Dec. 5, 6, 11, 12, 14, 15.	Do.	1903	Jan. 8, 12; Dec. 6.....	July 1; Aug. 8.

ALABAMA.

Coast Region: MOBILE COUNTY. Station: MOBILE.

ALBERT ASHENBURGER, Observer.

[Established by Signal Service November, 1870. Latitude, 30° 41' N. Longitude, 88° 2' W. Elevation, 11 feet.]

The various locations of the station have been within 400 yards of the present office in the custom-house, and since 1872 have been on Royal street which runs parallel to the Mobile River about 300 yards from its west bank.

The topography presents, to the south and east, lowlands and the waters of Mobile River and Mobile Bay; and to the west, a gradually increasing elevation which reaches an altitude of 140 feet, at Spring Hill, 6 six miles from the river, and this prominence is backed by gently undulating country with altitudes ranging from 75 to 150 feet.

The custom-house is 77 feet high and is surrounded by buildings of about equal height. The building has a copper-covered hip roof 88 feet by 146 feet. The apex of the roof is surmounted by a wooden platform, 20 feet square, on which the instruments are erected. The thermometers are exposed in a Weather Bureau standard shelter 11 feet above the platform. The rain gage is on the platform 11 feet to the northwest of the shelter, its top being 78 feet above the ground.

The means of the maxima and means of the minima in the table have been calculated from thirty-one years' record—1873-1903—the snowfall data is from twenty years—1884-1903—the humidity data from fourteen years—1888-1901. Remainder of data is from full period—thirty-three years—November 6, 1870, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr.	P. ct.	Gr.		
December.....	53	60	79	46	14	61	44	4.6	10	1.6	4.7	T.	0.5	88	3.23	79	3.45	N.
January.....	50	59	78	43	11	62	44	4.8	11	0.6	4.1	T.	1.0	88	3.11	79	3.45	N.
February.....	54	62	80	46	- 1	62	44	5.3	10	3.0	10.1	T.	4.0	88	3.11	79	3.83	N.
Winter mean.....	52	60	.....	45	.....	.....	.....	14.7	31	5.2	18.9	T.	.....	88	3.15	79	3.58	N.
March.....	59	68	85	52	25	66	54	7.4	11	2.2	6.8	0.0	0.0	86	3.89	76	4.37	S.
April.....	67	75	90	58	32	70	62	4.5	9	2.0	7.2	0.0	0.0	84	5.16	74	5.72	S.
May.....	74	83	98	66	46	77	70	4.2	8	5.5	10.1	0.0	0.0	82	6.54	71	6.64	S.
Spring mean.....	67	75	.....	59	.....	.....	.....	16.1	28	9.7	24.1	0.0	.....	84	5.20	74	5.58	S.
June.....	80	88	101	72	50	83	76	6.1	12	4.2	26.7	0.0	0.0	84	8.11	76	8.06	S.
July.....	81	90	102	74	64	85	79	6.7	15	9.2	4.3	0.0	0.0	85	8.74	79	8.91	S.
August.....	81	89	101	73	57	84	78	6.9	14	4.8	4.7	0.0	0.0	88	8.50	80	8.75	S.
Summer mean.....	81	89	.....	73	.....	.....	.....	19.7	41	18.2	35.7	0.0	.....	86	8.45	78	8.57	S.
September.....	77	86	96	70	49	81	73	4.9	9	3.6	4.0	0.0	0.0	87	7.17	76	7.57	N.
October.....	68	77	93	59	34	74	63	3.2	7	5.6	4.6	0.0	0.0	85	5.65	71	5.48	N.
November.....	58	67	83	50	25	63	54	3.5	8	0.3	3.8	0.0	0.0	86	3.76	76	4.37	N.
Fall mean.....	68	77	.....	60	.....	.....	.....	11.6	24	9.5	12.4	0.0	.....	86	5.33	74	5.81	N.
Annual mean.....	67	75	102	59	- 1	.....	.....	62.1	124	42.6	91.1	T.	4.0	86	5.53	76	5.88	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 29.....	June 29, 30; July 2.	1899	Feb. 8, 12-14.....	June 22; July 30; Aug. 1, 8, 12; Sept. 3.
1895	Jan. 13; Feb. 7-9.....	June 2.	1900	Feb. 18.....	Aug. 19-21.
1896	Jan. 5.....	July 31; Aug. 5, 12.	1901	Dec. 15, 16, 18, 20, 21..	June 17, 26, 27; July 11-13; Aug. 2.
1897	Jan. 27, 28.....	June 19, 21, 26; July 26, 31; Aug. 2, 3, 28.	1902	None.....	June 15, 16; July 7; Aug. 17, 22, 23.
1898	Jan. 2.....	July 1, 21, 22.	1903	.....do.....	July 22, 23.

MISSISSIPPI.

By WILLIAM S. BELDEN,
Section Director.

MISSISSIPPI.

The elevation of the State of Mississippi ranges from about 600 feet above sea level in the extreme northern counties to sea level along the Gulf coast, and therefore has a general slope from north to south of about 2 feet to the mile.

With respect to topography the State is divided into two sections which are separated by the Yazoo River. The Yazoo-Mississippi Delta, which comprises a lenticular-shaped area extending from the northwestern corner of the State to Vicksburg and bounded on the east by the Yazoo River and on the west by the Mississippi River, is a low, level tract of land, being a part of the Mississippi alluvial flood plain, and having a gradual slope from north to south of 0.6 foot per mile and from west to east of 0.4 foot per mile. It is drained by the Yazoo River and its western tributaries. This section, constituting about one-eighth of the area of the State and now protected by 318 miles of well-built levee along the Mississippi front, was originally overgrown with heavy timber, and the larger portion of it still remains in its primitive condition.

The remainder of the State is generally rolling and even quite hilly in some localities, especially in the north-central, east-central, and southwestern counties. All important streams flow in a southerly direction, and are tributary to the Mississippi River or empty into the Gulf of Mexico. Bluffs ranging from 100 to 300 feet in elevation overlook the Mississippi River from Vicksburg southward to Louisiana. Where not cleared for agricultural purposes, woods are general, excepting in about eight northeastern counties, commonly known as the prairie region. Pine tree forests predominate over the southern portion of the State.

Temperature.—Mississippi lies wholly south of the thirty-fifth parallel of latitude, borders on the Gulf of Mexico, and, as noted above, has only a moderate elevation. These three factors tend to produce a mild climate. The normal annual temperature for the State is 64°, the highest normal annual being 67° on the coast, and the lowest 61°, in the extreme northern counties. During the winter months there is a rather steep north-and-south temperature gradient, while the normal summer temperature of any place does not differ materially from the normal summer temperature of the State as a whole.

The normal temperature for the State by months is as follows: January, 46.6°; February, 48.3°; March, 56.7°; April, 64.8°; May, 72.5°; June, 79°; July, 80.9°; August, 80°; September, 75.1°; October, 64.3°; November, 54.6°; December, 47.8°. From the above it will be noted that the normal summer temperature is 80° and the normal winter temperature 47.5°. The transition from winter to summer is quite gradual, as each month of spring is about 8° warmer than the month preceding it, while the temperature decline in the fall is most abrupt in October and November, October being 11° colder than September and November nearly 10° colder than October.

The normal daily temperature range for each month is as follows: January, 19°; February, 19°; March, 21°; April, 22°; May, 22°; June, 21°; July, 20°; August, 20°; September, 23°; October, 25°; November, 23°; December, 21°.

January is the coldest month and July the warmest, but the most abrupt temperature changes usually occur in February. The absolute extremes for the State are 15° below zero (−15°) and 107°; the former was observed at Aberdeen on February 13, 1899, and the latter at several places in July and August of different years. The coldest individual month on record is that of February, 1899, with a mean temperature of 36.3°, or 12° below normal. The extremely cold days of that month were the 12th, 13th, and 14th, when minimum temperatures fell to 10° below zero, or lower, in the northern portion of the State and to within 1° of zero on the Gulf coast. Ice formed to considerable thickness in the bays along the Gulf of Mexico, and the Mississippi River was so full of heavy floating ice at Vicksburg as to render the ferrying of trains across the river impossible. July, 1901, with a mean temperature of 83.3°, or 2.4° above normal, is the warmest individual month on record. December, 1889, was a remarkable month in that it had a mean temperature of 60°, or 12° above normal.

Frost.—The average date of the first killing frost in autumn over the northern half of the State is October 31, over the southern half, exclusive of the counties bordering on the Gulf, November 5, and over the Gulf counties November 27. In spring the average date of the last killing frost over the Gulf counties is March 3, over the southern half of the State, exclusive of the counties bordering on the Gulf, March 20, and over the northern half of the State March 25.

Precipitation.—The normal annual precipitation for Mississippi is about 51 inches. Over the southern half of the State the normal annual precipitation is nearly 54 inches, while over the northern half it is about 49 inches. The normal monthly precipitation is as follows: January, 5.40 inches; February, 5.16 inches; March, 5.59 inches; April, 4.23 inches; May, 3.09 inches; June, 4.78 inches; July, 5.22 inches; August, 4.33 inches; September, 2.58 inches; October, 2.05 inches; November, 3.24 inches; December, 4.81 inches.

March is the wettest month, with over 5.5 inches of precipitation, and October the driest, with a little over 2 inches. The normal winter precipitation is 15.4 inches, spring 12.9, summer 14.3, and fall 8.1. The average annual number of days with a measurable amount of precipitation is 93.

As a rule the rainfall of summer is decidedly local in character, while the winter rains usually attend the passage of southwestern storms, and are general and frequently excessive.

The greatest annual rainfall, 101.5 inches, occurred at Bay St. Louis in 1900, and the least annual, 22.5 inches, at Kosciusko in 1889.

Monthly rainfalls in excess of 20 inches have been recorded as follows: 22.2 inches in April, 1874, at Vicksburg; 23.9 inches in July, 1892, at Macon; 21.8 inches in September, 1898, at Biloxi; 20.1 inches in June, 1900, at Meridian; 23.3 inches in June, 1900, at Latonia; 20.2 inches in June, 1900, at Bay St. Louis.

On the other extreme no rain fell at Kosciusko from August 21 to November 9, 1891, a period of seventy-nine days.

The average monthly precipitation for the State has exceeded 10 inches four times since January 1, 1888, namely: July, 1892, 10 inches; April, 1900, 11.2; June, 1900, 12.1, and February, 1903, 10.8. During the same period the average monthly precipitation has been less than 1 inch, as indicated below: 0.26 inch in October, 1889; 0.94 inch in December, 1889; 0.86 inch in October, 1891; 0.59 inch in October, 1892; 0.84 inch in October, 1894; 0.93 inch in November, 1894; 0.65 inch in September, 1897; 0.67 inch in September, 1903.

The following are among the most excessive twenty-four-hour rainfalls on record: 7.2 inches on July 7-8, 1892, at Agricultural College; 8.3 inches on July 7-8, 1892, at Columbus; 7.9 inches on July 8-9, 1892, at Okolona; 9.2 inches on April 16, 1900, at Fayette; 8.4 inches on April 16, 1900, at Magnolia; 9.5 inches on June 12, 1900, at Bay St. Louis; 8.3 inches on March 27, 1902, at Walnut Grove; 8.6 inches on March 28, 1902, at Ripley; 7.1 inches on March 27-28, 1902, at Vicksburg.

At Meridian 10.6 inches of rain fell in forty-three hours and twenty minutes on April 15-17, 1900, and at Vicksburg 4.5 inches fell in two hours and fifty minutes on March 27, 1902.

Snowfall.—Over the northern half of the State the average annual snowfall is about 4 inches and over the southern half about 1.5 inches.

Fog.—The average annual number of foggy days is seven.

Wind.—The prevailing wind direction is from the southeast. At Vicksburg winds of 40 miles per hour or more have occurred twenty-four times during the fourteen years ending with 1903, and the highest velocity on record is 56 miles per hour. Eighty per cent of the high winds are from the west and northwest.

Thunderstorms and tornadoes.—Thunderstorms occur in all sections of the State in all months of the year, but are most numerous in July and August. The average annual number is 54. On the average these storms are attended by hail twice a year, and occasionally the hail is quite destructive to fruit and field crops over small areas.

On the average severe Gulf storms of late summer or fall cross the State less than once a year, but the heavy rains and high winds attending the passage of these storms generally do considerable damage to crops, especially cotton. A storm of this type moved northward over the eastern half of the State on August 14-17, 1901, giving from 4 to 8 inches of rainfall and high shifting winds.

February and March are the months in which tornadoes are most liable to occur, and no part of the State is exempt from their destructive violence, although the field of their greatest activity seems to be in the northern half of the State. While reliable data with respect to these storms have been difficult to obtain, it appears from available information that the average annual number within the State is about three.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
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CLIMATOLOGY OF THE UNITED STATES.

STATE SUMMARY.

Station.	Num-ber.	Temperature.								
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Abso-lute maxi-mum.	Date.	Abso-lute mini-mum.	Date.	Average num-ber days with—	
									Maxi-mum above 90°.	Mini-mum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Batesville.....	1	62	72	50	107	July, 1901.....	- 5	February, 1899.....	58	55
Pontotoc.....	2	62	73	52	105	do.....	-11	do.....	43	44
Palo Alto.....	3	64	73	54	104	do.....	-10	do.....	51	39
Greenville.....	4	64	75	53	105	do.....	- 5	do.....	77	36
Louisville.....	5	63	75	50	104	do.....	-13	do.....	48	38
Yazoo City.....	6	65	77	53	107	July, 1894.....	- 2	do.....	44	44
Canton.....	7	64	75	54	106	August, 1902.....	- 3	do.....	58	30
Vicksburg.....	8	65	75	56	101	June, 1881.....	- 1	do.....	58	18
Meridian.....	9	64	74	53	104	July, 1901.....	- 6	do.....	48	39
Crystal Springs.....	10	65	76	54	105	do.....	- 7	do.....	82	35
Natchez.....	11	66	78	56	105	do.....	- 7	do.....	75	23
Hattiesburg.....	12	67	77	56	103	July, 1902.....	- 1	do.....	92	26
Magnolia.....	13	66	77	55	105	July, 1896.....	- 1	do.....	84	33
Biloxi.....	14	67	75	59	100	July, 1901.....	- 1	do.....	36	13

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						Inches.	Inches.	Inches.	Inches.	Inches.
Batesville.....	1	Oct. 24	Mar. 24	Oct. 9	Apr. 7	48.0	13.8	12.3	7.9	14.0
Pontotoc.....	2	Oct. 28	Mar. 25	do.....	Apr. 9	49.8	13.6	13.6	8.1	14.5
Palo Alto.....	3	Nov. 4	Mar. 27	Oct. 15	Apr. 22	51.8	14.3	13.3	8.5	15.7
Greenville.....	4	Oct. 31	Mar. 15	Oct. 9	Mar. 30	45.9	13.4	11.1	8.3	13.1
Louisville.....	5	Nov. 3	Mar. 21	Oct. 16	Apr. 10	51.0	13.5	14.1	7.5	15.9
Yazoo City.....	6	Nov. 2	Mar. 27	Oct. 21	Apr. 21	48.0	13.0	13.3	7.2	14.5
Canton.....	7	Nov. 4	Mar. 20	Oct. 15	Apr. 7	49.6	13.4	12.1	7.8	16.3
Vicksburg.....	8	Nov. 12	Mar. 17	Oct. 19	Apr. 6	53.8	15.9	12.0	10.3	15.6
Meridian.....	9	Oct. 31	Mar. 26	Oct. 8	Apr. 10	53.4	14.1	15.2	7.8	16.3
Crystal Springs.....	10	Nov. 1	Mar. 28	Oct. 15	Apr. 21	53.3	13.1	15.4	7.7	17.1
Natchez.....	11	Nov. 14	Mar. 14	Oct. 27	Mar. 30	50.0	13.7	15.0	8.0	13.8
Hattiesburg.....	12	Nov. 12	Mar. 10	Oct. 25	do.....	48.1	10.2	16.7	6.9	14.3
Magnolia.....	13	Nov. 8	Mar. 16	do.....	Apr. 7	61.0	14.6	19.6	9.3	17.5
Biloxi.....	14	Nov. 26	Feb. 27	Oct. 22	Mar. 26	61.3	13.6	20.0	12.6	15.1

MISSISSIPPI.

Northwestern District: PANOLA COUNTY. Station: BATESVILLE.

J. M. Cox, Observer.

[Established by Signal Service July, 1882. Latitude, 34° 19' N. Longitude, 89° 57' W. Elevation, 230 feet.]

This station is near the center of the town of Batesville, which is about 1 mile southeast of the Tallahatchie River. The surrounding country is comparatively level.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located on the north side of Mr. Cox's house. The height of the thermometers above sod is 4½ feet.

The rain gage is 25 feet north of the house, a one-story building, and in an open place. The top of the gage is 4 feet above ground.

From 1882 to 1886 the record was kept during the summer months only.

Mean temperatures were computed from the daily extremes.

The record of mean of maxima and mean of minima temperatures, absolute maximum and absolute minimum, number of days with 0.01 or more precipitation, and snowfall are for the period of observation February, 1891, to December, 1903; the remaining data are for the period January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	44	53	75	32	1	60	37	4.4	6	3.9	3.1	0.5	3.6
January.....	44	52	76	33	- 3	53	■	5.2	■	6.0	5.4	1.4	8.0
February.....	43	52	79	33	- 5	50	29	4.4	6	0.5	5.0	0.7	5.0
Winter mean.....	44	52	.....	33	.....	.....	.....	14.0	20	10.4	13.5	2.6	.....
March.....	53	64	83	42	17	57	49	5.9	9	4.2	2.0	0.6	5.5
April.....	62	73	93	50	29	68	57	4.0	7	3.3	7.4	0.0	0.0
May.....	70	82	96	59	36	75	66	3.9	6	1.7	13.5	0.0	0.0
Spring mean.....	62	73	.....	50	.....	.....	.....	13.8	22	9.2	22.9	0.6	.....
June.....	78	90	103	66	40	84	72	4.4	7	3.6	7.7	0.0	0.0
July.....	80	92	107	69	53	84	77	4.6	8	6.6	2.3	0.0	0.0
August.....	79	90	105	68	49	81	77	3.3	6	0.5	3.0	0.0	0.0
Summer mean.....	79	91	.....	68	.....	.....	.....	12.3	21	10.7	13.0	0.0	.....
September.....	72	85	97	60	34	77	69	2.6	4	1.0	8.3	0.0	0.0
October.....	61	75	92	47	18	66	55	1.7	3	1.7	0.3	0.0	0.0
November.....	51	62	81	39	16	54	47	3.6	5	3.6	5.3	0.0	0.0
Fall mean.....	61	74	.....	49	.....	.....	.....	7.9	12	6.3	13.9	0.0	.....
Annual mean.....	61	72	107	50	- 5	.....	.....	48.0	75	36.6	63.3	3.2	8.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 25; Feb. 26; Dec. 28, 31.	June 30; July 1.	1899	Jan. 1; Feb. 11-14....	None.
1895	Jan. 1; Feb. 7, 8.....	None.	1900	Feb. 17.....	Do.
1896	None.	July 28, 31; Aug. 1, 2, 6, 7, 14, 15, 17.	1901	Dec. 15-18, 20, 21.....	June 20-29; July 2, 3, 5, 7, 10-13, 15-18, 20-23, 29; Aug. 3, 4, 9, 10.
1897	Jan. 28.....	July 6, 7; Aug. 3-5.	1902	None.....	June 12, 14; Aug. 1, 2, 5-8, 16, 17.
1898	Dec. 31.....	None.	1903	Feb. 17.....	None.

MISSISSIPPI.

Northeastern District: PONTOTOC COUNTY. Station: PONTOTOC.

C. W. BOLTON, Observer.

[Established by Signal Service in January, 1889. Latitude, 34° 15' N. Longitude, 89° W. Elevation, unknown.]

This station is on the northern edge of the town of Pontotoc, which is situated on a moderate elevation commonly known as "Pontotoc Ridge," a watershed extending from about 15 miles south of Pontotoc northward to the Tennessee border line. The surrounding country is hilly, and its most striking feature is the bright red color of its soil.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located near the north edge of a north gallery of Doctor Bolton's house. The thermometers are subject to a free air circulation and are 10 feet above sod.

The rain gage is 15 feet south of the house, a one-story building. The top of the gage is 3 feet above ground.

Tabulated data are for the period of observation January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	46	54	81	34	2	58	39	4.7	9	1.0	8.8	1.6	4.5	SE.
January.....	43	52	84	33	1	54	36	5.1	8	3.8	3.5	1.8	8.0	SE.
February.....	44	54	78	34	-11	53	34	4.7	9	7.6	3.4	1.3	3.5	N.
Winter mean.....	44	53		34				14.5	26	12.4	15.7	4.7		SE.
March.....	53	64	86	43	15	58	49	6.4	11	6.6	4.5	1.6	6.0	S.
April.....	62	73	92	52	26	69	58	3.8	7	2.8	10.1	T.	T.	S.
May.....	70	81	95	60	37	77	62	3.4	6	2.0	6.2	T.	T.	S.
Spring mean.....	62	73		52				13.6	24	11.4	20.8	1.6		S.
June.....	77	88	101	68	46	81	71	4.4	8	3.8	5.0	0.0	0.0	S.
July.....	79	90	105	71	57	83	74	5.0	8	2.4	9.3	0.0	0.0	S.
August.....	79	90	103	70	48	84	73	4.2	7	1.6	3.1	0.0	0.0	S.
Summer mean.....	78	89		70				13.6	23	7.8	17.4	0.0		S.
September.....	73	85	101	64	36	79	69	3.2	4	1.0	9.1	0.0	0.0	S.
October.....	62	76	94	51	28	69	57	1.4	4	2.3	T.	0.0	0.0	S.
November.....	52	64	88	41	14	58	49	3.5	6	3.6	4.7	T.	0.2	SE.
Fall mean.....	62	75		52				8.1	14	6.9	13.8	T.		S.
Annual mean.....	62	73	105	52	-11			49.8	87	38.5	67.7	6.3	8.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28, 29...	None.	1899	Jan. 31; Feb. 1, 8-14..	Sept. 5.
1895	Feb. 7-9.....	Do.	1900	Feb. 17.....	None.
1896	None.....	July 29-31; Aug. 1, 12, 13, 15, 16.	1901	Dec. 15, 16, 18, 21.....	July 11, 12, 15.
1897	Jan. 28, 29.....	June 27; Aug. 2-4.	1902	None.....	July 8; Aug. 18.
1898	Dec. 14.....	None.	1903	Feb. 17.....	None.

MISSISSIPPI.

East Central District: CLAY COUNTY. Station: PALO ALTO.

WILLIAM H. HILL, Observer.

[Established by Signal Service February, 1887; discontinued in December, 1902. Latitude, 33° 40' N. Longitude, 88° 47' W. Elevation, 300 feet.]

This station is about 11 miles northwest of West Point and 1 mile from Abbott. It is surrounded by a gently rolling prairie.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located in a large open lot over 100 feet from the nearest trees and buildings. The height of the thermometers above sod is 5 feet.

The rain gage is 20 feet from the shelter. The top of the gage is 3 feet above ground.

Mean temperatures were computed from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and wind data are for a period of eleven years only. The remaining data are for the period February 1, 1887, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maximum.	Mean of the min-ima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	47	56	76	36	6	59	42	4.6	7	4.2	3.6	0.9	6.0	N.
January.....	45	53	79	34	6	55	40	5.7	9	1.6	2.5	2.3	8.0	N.
February.....	47	55	78	36	-10	57	36	5.4	10	4.2	5.9	2.1	6.5	N.
Winter mean.....	46	55	.....	35	.....	.....	.....	15.7	26	10.0	12.0	5.3	.....	N.
March.....	55	64	85	45	18	60	50	7.3	8	2.1	7.2	0.7	2.5	N.
April.....	64	74	93	54	29	69	58	3.6	8	4.3	7.7	0.0	0.0	S.
May.....	73	83	96	63	44	77	69	3.4	7	7.7	5.5	0.0	0.0	S.
Spring mean.....	64	74	.....	54	.....	.....	.....	14.3	23	14.1	20.4	0.7	.....	S.
June.....	79	88	99	70	48	82	76	4.1	10	2.3	15.3	0.0	0.0	S.
July.....	81	90	104	72	59	85	77	5.0	12	1.2	4.6	0.0	0.0	S.
August.....	80	90	103	72	52	86	77	4.2	8	3.8	3.8	0.0	0.0	S.
Summer mean.....	80	89	.....	71	.....	.....	.....	13.3	30	7.3	23.7	0.0	.....	S.
September.....	75	85	100	65	38	80	71	3.4	5	8.2	1.8	0.0	0.0	S.
October.....	64	76	93	53	32	69	60	2.5	4	0.4	10.4	0.0	0.0	N.
November.....	54	65	89	43	19	60	50	2.6	6	2.4	1.2	T.	T.	N.
Fall mean.....	64	75	.....	54	.....	.....	.....	8.5	15	11.0	13.4	T.	.....	N.
Annual mean.....	64	73	104	54	-10	.....	.....	51.8	94	42.4	69.5	6.0	8.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1902.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28, 29...	None.	1899	Feb. 12-14.....	None.
1895	Jan. 1; Feb. 7, 8.....	Do.	1900	None.	Do.
1896	None.	July 30, 31; Aug. 1, 12, 13, 16; Sept. 17.	1901	Dec. 15, 16, 18, 20, 21...	July 11-13, 15; Aug. 3.
1897	Jan. 28, 29.....	Aug. 1-3.	1902	None.	July 8; Aug. 18.
1898	None.	None.			

MISSISSIPPI.

West Central District: WASHINGTON COUNTY. Station: GREENVILLE.

M. G. HARBISON, Observer.

[Established by Signal Service January, 1887. Latitude, 33° 27' N. Longitude, 91° 1' W. Elevation, 126 feet.]

This station is in the western portion of the city of Greenville, which is situated on the Mississippi River, and within a few blocks of the river. The surrounding country is a part of the Mississippi flood plain and, where not cleared for agricultural purposes, is heavily overgrown with timber.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located under a large shade tree and within about 2 feet of the trunk of the tree. The height of the thermometers above ground is 8½ feet.

The rain gage is on the roof of a one-story house and has an unobstructed exposure. The top of the gage is 15 feet above ground.

Mean temperatures were computed from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, and frost data are for the period of observation May, 1893, to December, 1903, and wind data from January, 1896, to December, 1903. The remaining data are for the period January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	46	55	80	36	9	59	41	3.8	9	0.2	6.5	0.5	2.5	NW.
January.....	45	54	78	36	9	56	33	4.8	11	3.3	5.6	0.4	1.2	N.
February.....	47	54	81	35	- 5	58	32	4.5	10	5.2	3.6	1.1	4.0	NW.
Winter mean.....	46	54	.....	35	.....	.....	.....	13.1	30	8.7	15.7	2.0	.....	NW.
March.....	55	66	90	46	20	60	50	5.8	10	8.0	3.9	0.5	2.5	S.
April.....	65	75	91	54	33	68	60	4.1	8	2.5	9.7	0.0	0.0	NW.
May.....	73	84	99	63	39	77	70	3.5	8	1.1	2.9	0.0	0.0	SW.
Spring mean.....	48	75	.....	54	.....	.....	.....	13.4	26	11.6	16.5	0.5	.....	NW.
June.....	80	90	105	69	47	83	75	3.6	8	0.7	2.5	0.0	0.0	SW.
July.....	82	93	105	72	59	85	80	4.2	9	0.8	9.2	0.0	0.0	SW.
August.....	81	93	104	72	60	85	78	3.3	8	1.8	3.5	0.0	0.0	SW.
Summer mean.....	81	92	.....	71	.....	.....	.....	11.1	25	3.3	15.2	0.0	.....	SW.
September.....	75	87	100	64	44	81	73	2.8	6	0.7	7.0	0.0	0.0	NW.
October.....	64	78	93	52	33	70	57	2.0	5	3.2	0.8	0.0	0.0	NW.
November.....	54	66	84	43	19	60	49	3.5	8	4.7	2.4	0.0	0.0	NW.
Fall mean.....	64	77	.....	53	.....	.....	.....	8.3	19	8.6	10.2	0.0	.....	NW.
Annual mean.....	64	75	105	53	5	.....	.....	45.9	100	32.2	57.6	2.5	4.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	None.....	June 29, 30; July 1-4.	1899	Feb. 12-14.....	None.
1895	.....do.....	July 16.	1900	None.....	Do.
1896	.....do.....	July 3, 17-19, 29-31; Aug. 1, 2, 5-9, 13, 14, 16-18, 22, 23; Sept. 16, 17.	1901	Dec. 16.....	July 12; Aug. 3.
1897	Jan. 28.....	July 2, 7, 12; Aug. 5.	1902	None.....	June 6, 11, 15, 18, 20; July 8-10, 16, 17; Aug. 5, 10, 14-21, 27.
1898	None.....	None.	1903	.....do.....	July 22.

MISSISSIPPI.

North Central District: WINSTON COUNTY. Station: NEAR LOUISVILLE.

B. T. WEBSTER, Observer.

[Established by Signal Service in December, 1888. Latitude, 33° 7' N. Longitude, 89° 1' W. Elevation, 561 feet.]

This station is located about 2 miles southeast of the town of Louisville, and near the center of Winston County. The surrounding country ranges from undulating to hilly and is generally wooded.

The thermometers are exposed near the north edge of the north gallery of Mr. Webster's dwelling. The gallery is open toward the north, south, and east. The thermometers are protected from the direct and reflected rays of the sun, subject to a free air circulation, and are 8 feet above ground.

The rain gage is located in an open place and is 35 feet from the nearest tree. The top of the gage is 6 feet above ground. Mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
December.....	° F. 47	° F. 59	° F. 80	° F. 34	° F. 3	° F. 59	° F. 41	In. 4.6	5	In. 1.0	In. 2.7	In. 1.2	In. 4.0
January.....	45	56	77	33	6	56	40	5.5	7	4.8	3.5	0.8	4.5
February.....	47	58	84	35	-13	58	34	5.8	8	2.0	6.2	1.7	5.5
Winter mean.....	46	58		34				15.9	20	7.8	12.4	3.7	
March.....	55	67	84	43	15	61	51	6.2	8	4.6	6.0	0.8	4.0
April.....	63	75	92	50	25	68	58	4.2	5	3.5	13.4	T.	T.
May.....	70	83	96	58	38	75	68	3.1	5	0.5	6.6	0.0	0.0
Spring mean.....	63	75		50				13.5	18	8.6	26.0	0.8	
June.....	77	89	102	66	43	81	72	4.4	7	6.1	14.0	0.0	0.0
July.....	80	91	104	68	55	83	73	5.0	10	9.3	3.9	0.0	0.0
August.....	79	91	103	68	43	83	77	4.7	8	2.3	1.2	0.0	0.0
Summer mean.....	79	90		67				14.1	25	17.7	19.1	0.0	
September.....	74	87	100	62	38	79	70	2.6	4	1.0	1.0	0.0	0.0
October.....	64	79	99	49	26	69	60	1.8	3	0.2	5.6	0.0	0.0
November.....	54	67	86	40	14	60	48	2.0	4	3.8	1.1	T.	T.
Fall mean.....	64	78		50				7.4	11	5.0	7.7	T.	
Annual mean.....	63	75	104	50	-13			50.9	74	34.1	65.2	4.5	5.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28, 29...	None.	1899	Feb. 1, 8, 11-14.....	Sept. 5.
1895	Jan. 1, 13; Feb. 7-9, 13, 17.	Do.	1900	Feb. 1, 17, 18.....	None.
1896	None.....	July 30, 31; Aug. 1, 6, 12, 13, 17, 21.	1901	Dec. 15, 16, 18, 20, 21..	July 11, 12; Aug. 3.
1897	Jan. 26, 28, 29.....	June 23, 24; July 1-3; Aug. 1-4; Sept. 3.	1902	None.....	June 18; July 16, 17; Aug. 14, 15, 18-20, 27.
1898	Dec. 14.....	None.	1903	.....do.....	None.

MISSISSIPPI.

West Central District: YAZOO COUNTY. Station: YAZOO CITY.

W. C. GOOSEY, Observer.

[Established by the Signal Service in January, 1886. Latitude, 32° 50' N. Longitude, 90° 27' W. Elevation, 116 feet.]

This station is on the west side of the Yazoo River, just opposite Yazoo City. The country west of the river is level, being a part of the Mississippi flood plain, while on the east side there is a valley a few miles wide, beyond which the Cane Hills rise rather abruptly to an elevation of from 150 to 300 feet above the valley.

The maximum and minimum thermometers are exposed in a standard shelter, which is located about 125 feet from the south end of the iron wagon bridge across the Yazoo River and about 20 feet south of a one-story building and 18 feet east of another one-story building. The height of the thermometers above sod is 9 feet.

The rain gage is located in an open place about 40 feet east of the shelter. The top of the gage is 6 feet above ground.

Mean temperatures were computed from the daily extremes.

Snowfall, temperature, and frost data and miscellaneous phenomena are for the period of observation, September, 1893, to December, 1903; wind data from January, 1896, to December, 1903; number of days with 0.01 or more precipitation, from April, 1891, to December, 1903. The remaining data are for the period January 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	47	58	82	35	9	52	42	4.2	8	0.6	4.6	0.2	1.6	SE.
January.....	46	57	81	35	10	52	42	5.5	9	3.8	7.5	0.7	3.0	SE.
February.....	45	56	82	35	-2	51	37	4.8	9	8.7	3.2	1.2	5.0	SE.
Winter mean.....	46	57	.....	35	.....	.....	.....	14.5	26	13.1	15.3	2.1	.....	SE.
March.....	58	70	91	47	24	65	54	5.9	9	3.6	6.0	T.	T.	SE.
April.....	66	78	96	54	33	72	60	4.2	7	3.5	11.2	0.0	0.0	SE.
May.....	75	87	103	63	42	80	71	3.0	6	2.0	2.3	0.0	0.0	SE.
Spring mean.....	66	78	.....	55	.....	.....	.....	13.0	22	9.1	19.5	T.	.....	SE.
June.....	80	92	102	68	48	83	74	4.5	9	3.1	5.8	0.0	0.0	S.
July.....	83	95	107	71	51	86	81	4.4	10	0.6	7.6	0.0	0.0	SE.
August.....	83	95	107	72	52	86	80	4.4	10	1.7	7.4	0.0	0.0	SE.
Summer mean.....	82	94	.....	70	.....	.....	.....	13.3	29	5.4	20.8	0.0	.....	SE.
September.....	76	89	105	63	39	81	73	2.6	4	0.6	2.1	0.0	0.0	S.
October.....	65	80	99	50	24	69	59	1.8	4	4.5	0.3	0.0	0.0	SE.
November.....	55	68	88	42	14	60	50	2.8	6	2.6	4.8	0.0	0.0	NE.
Fall mean.....	65	79	.....	52	.....	.....	.....	7.2	14	7.7	7.2	0.0	.....	SE.
Annual mean.....	65	77	107	53	-2	.....	.....	48.0	91	35.3	62.8	2.1	5.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 29.....	June 30; July 1, 4, 5; Aug. 1.	1899	Feb. 12-14.....	June 5, 6, 8, 23; July 14-18, 23, 30, 31;
1895	Feb. 7-9.....	June 2; July 14, 16-18; Aug. 11; Sept. 16.			Aug. 2, 6-14, 21, 22, 24, 25; Sept. 5-7.
1896	Jan. 4.....	May 25, 26; June 1, 27-29; July 3, 5, 6, 14,	1900	None.....	Sept. 17.
		21, 23, 25-31; Aug. 1, -9, 12-14, 17-19, 22-	1901	do.....	June 27, 28; July 12, 13, 15, 17; Aug. 3.
		24; Sept. 5, 10-12, 15-18.	1902	do.....	June 11, 13, 18; July 7, 8, 10, 16; Aug. 5,
1897	None.....	June 12-15, 20, 21, 23-27, 29, 30; July 1-5,			15-21, 26, 27.
		8, 24, 26, 27; Aug. 2-6, 29.	1903	do.....	None.
1898	Jan. 2.....	July 22; Aug. 24, 25; Sept. 3.			

MISSISSIPPI.

West Central District: MADISON COUNTY. Station: NEAR CANTON.

GEORGE W. SMITH-VANIZ, Observer.

[Established by Signal Service in January, 1883. Latitude, 32° 40' N. Longitude, 90° 3' W. Elevation, 228 feet.]

This station is 5 miles northwest of Canton in a rather level and thinly wooded region. The maximum and minimum thermometers are exposed in a standard instrument shelter, which is exposed in a large open place about 100 feet from Doctor Smith-Vaniz's dwelling. The height of the thermometers above sod is about 4 feet. The rain gage is 2 feet east of the instrument shelter. The top of the gage is 6 feet above ground.

Mean temperatures were computed from the daily extremes.

Mean precipitation and the total amounts for the driest and wettest years are for the period of observation, January, 1883, to December, 1903. The remaining data are included within the period February 1, 1891, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	48	58	77	38	11	51	44	5.2	11	1.1	2.8	0.1	0.8	
January.....	46	56	79	38	15	53	40	5.8	9	4.2	5.8	0.5	3.5	
February.....	48	57	78	40	- 3	56	38	5.3	9	0.7	5.9	1.0	3.5	
Winter mean.....	47	57		39				16.3	26	6.0	14.5	1.6		
March.....	57	67	85	48	23	64	52	5.9	10	5.0	6.2	0.1	0.7	
April.....	65	75	92	55	31	70	60	4.2	7	5.1	6.0	0.0	0.0	
May.....	72	83	95	62	40	78	70	3.3	7	0.7	4.4	0.0	0.0	
Spring mean.....	65	75		55				13.4	24	10.8	16.6	0.1		
June.....	78	88	100	68	49	82	74	4.4	10	7.0	12.5	0.0	0.0	
July.....	81	91	103	71	58	84	79	4.1	11	3.0	6.0	0.0	0.0	
August.....	80	90	106	71	53	84	78	3.6	9	3.1	4.3	0.0	0.0	
Summer mean.....	80	90		70				12.1	30	13.1	22.8	0.0		
September.....	75	87	101	64	38	80	72	2.8	5	0.8	7.2	0.0	0.0	
October.....	65	77	95	52	27	70	61	2.0	4	0.3	0.1	0.0	0.0	
November.....	55	66	85	44	15	61	51	3.0	7	3.0	3.5	0.0	0.0	
Fall mean.....	65	77		53				7.8	16	4.1	10.8	0.0		
Annual mean.....	64	75	106	54	- 3			49.6	96	34.0	64.7	1.7	3.5	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25, 26; Dec. 28, 29.	None.	1900	Jan. 2-4, 26, 29, 30; Feb. 1, 17, 18.	Sept. 16.
1895	Jan. 13; Feb. 7-10, 13, 14.	Do.	1901	Feb. 23, 24; Dec. 15-18, 20, 21.	July 11-13.
1896	None.	July 31.	1902	Jan. 13, 14; Feb. 3; Dec. 27.	June 11; July 4, 7, 8, 16; Aug. 14-20, 22, 26, 27.
1897	Jan. 25-30.	July 1, 26; Aug. 1, 3-5.	1903	Jan. 9, 12, 13; Feb. 17; Nov. 19, 20, 27, 30; Dec. 6, 7, 16, 27.	None.
1898	Dec. 5, 10, 11, 14.	None.			
1899	Jan. 1, 2, 31; Feb. 1, 7-14; Nov. 4, 5; Dec. 6, 7.	Aug. 9, 12; Sept. 3-5.			

MISSISSIPPI.

West Central District: WARREN COUNTY. Station: VICKSBURG.

W. S. BELDEN, Section Director.

[Station established by Signal Service September, 1871. Latitude, 32° 22' N. Longitude, 90° 53' W. Elevation, 229 feet.]

This station has always been located near the center of the business portion of the city, which is situated on the bluffs overlooking the Mississippi River near the mouth of the Yazoo River. The country around Vicksburg is extremely rough; deep ravines and very narrow ridges alternate at irregular intervals. The bluffs have an average elevation of about 150 feet above the country across the river opposite the city.

The thermometers are exposed in a standard Weather Bureau instrument shelter which is located on the roof of the Post-Office building. The thermometers are 62 feet above ground and 6½ feet above the roof. The rain gage is also exposed on the roof of the same building and is 53 feet above ground. The anemometer cups are 74 feet above ground. The instruments have been in their present position since July 1, 1891; previous to that date they had a very similar exposure on the roofs of different buildings within the distance of a block.

Tabulated data are from the following periods of observation: All maximum and minimum temperatures, thirty years, 1874-1903; snowfall, nineteen years, 1885-1903; humidity, fifteen years, 1889-1903; sunshine, ten years, February, 1894, to December, 1903. Remainder of data is from the full period of observation, thirty-two years, September 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 50	° F. 59	° F. 79	° F. 42	° F. 12	° F. 64	° F. 40	In. 5.2	10	In. 1.4	In. 4.1	In. 0.1	In. 1.5	P.ct. 81	Gr.s. 2.76	P.ct. 64	Gr.s. 2.90	164	50	SE.
January.....	48	56	82	40	3	59	39	5.6	12	3.9	1.8	0.8	4.1	80	2.54	67	2.83	148	46	SE.
February.....	52	60	83	43	-1	60	41	4.8	11	10.1	4.6	0.7	3.2	79	2.70	65	3.05	148	47	SE.
Winter mean.....	50	58	.....	42	.....	.....	.....	15.6	33	15.4	10.5	1.6	.....	81	2.67	65	2.93	153	48	SE.
March.....	58	68	87	49	24	64	53	6.2	10	3.2	11.2	T.	T.	76	3.21	59	3.51	211	57	SE.
April.....	66	75	92	57	31	70	60	5.2	9	2.3	9.1	0.0	0.0	79	4.54	59	4.71	271	70	SE.
May.....	73	83	95	64	44	77	70	4.5	8	2.4	6.0	0.0	0.0	81	6.06	62	5.99	312	73	SE.
Spring mean.....	66	75	.....	57	.....	.....	.....	15.9	27	7.9	26.3	T.	.....	79	4.60	60	4.74	265	67	SE.
June.....	80	88	101	70	52	84	74	4.4	10	5.9	6.4	0.0	0.0	84	7.38	68	7.44	300	70	SE.
July.....	82	91	100	73	62	84	79	4.4	11	1.1	4.9	0.0	0.0	86	8.30	72	8.37	311	72	SW.
August.....	81	90	100	72	54	85	78	3.2	9	1.1	5.7	0.0	0.0	87	7.89	73	8.23	292	71	SW.
Summer mean.....	81	90	.....	72	.....	.....	.....	12.0	30	8.1	17.0	0.0	.....	86	7.86	71	8.01	301	71	SW.
September.....	76	86	98	66	42	81	72	3.4	7	0.3	10.5	0.0	0.0	84	6.49	68	6.77	281	78	SE.
October.....	66	76	94	56	34	72	62	2.6	6	3.6	5.8	0.0	0.0	80	4.30	61	4.56	255	72	SE.
November.....	56	66	86	47	22	62	48	4.3	11	2.7	14.2	0.0	0.0	80	3.26	63	3.56	194	62	SE.
Fall mean.....	66	76	.....	56	.....	.....	.....	10.3	22	6.6	30.5	0.0	.....	81	4.68	64	4.96	243	71	SE.
Annual mean.....	65	75	101	56	-1	.....	.....	53.8	112	38.0	84.3	1.6	4.1	81	4.95	65	5.16	241	64	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25, 26; Dec. 23, 29.	July 1.	1900	Jan. 29; Feb. 17, 18...	None.
1895	Jan. 14; Feb. 7-9, 13...	None.	1901	Dec. 15-21.....	July 13.
1896	Jan. 4, 5.....	July 31; Aug. 13.	1902	Dec. 27.....	None.
1897	Jan. 25-29.....	None.	1903	Feb. 16, 17.....	Do.
1898	Dec. 10, 14.....	Do.			
1899	Jan. 1, 31; Feb. 1, 7, 8, 10-14.	Do.			

MISSISSIPPI.

East Central District: LAUDERDALE COUNTY. Station: MERIDIAN.

L. A. DENSON, Observer.

[Established September 1, 1889; discontinued August 31, 1896, and reestablished December 28, 1898. Latitude, 32° 21' N. Longitude, 88° 40' W. Elevation, 338 feet.]

This station is near the center of the city of Meridian, which is located on the northwestern slope of the valley of Sowashee Creek. The extreme width of the valley is about 2½ miles from the highest ground on either side. The slope on the northern side is gradual, with a fall of 95 feet in 2 miles. Beyond the creek the rise is more abrupt; the valley being bounded by a range of hills extending from Mount Barton on the southwest to smaller foothills on the northeast. The main ridge extends on to the east of the foothills. The summit of the hill known as Mount Barton is 263 feet above the valley, and the foothills are 50 feet above, while the average height of the range is about 200 feet.

All exposed instruments are located on the tower of the Government building, corner of Eighth street and Twenty-second avenue, except the rain gage, which is 30 feet from the building, top being 3 feet above the ground.

The sunshine record is from 1899; humidity, a. m., fourteen years; p. m., seven years; remainder of tabulated data is from full period of observation, twelve years, September 1, 1889, to August 31, 1896, and January 1, 1899, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with .001 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p.m.	Absolute, 8 p.m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	49	59	76	38	9	59	43	5.1	8	2.7	3.3	0.2	2.0	85	2.60	70	3.21	144	46	N.	
January.....	46	56	79	37	12	58	40	5.0	11	5.0	2.4	0.3	2.0	85	2.42	75	2.85	147	46	N.	
February.....	48	58	80	39	-6	58	38	6.2	11	13.3	7.6	1.4	8.3	84	2.67	77	3.32	131	42	N.	
Winter mean....	48	58	.....	38	.....	.....	.....	16.3	30	21.0	13.3	1.9	.....	85	2.56	76	3.13	141	45	N.
March.....	56	66	85	45	17	60	51	5.8	11	4.4	4.5	T.	T.	83	3.15	68	3.65	207	56	S.	
April.....	64	75	90	54	28	69	59	4.0	7	1.4	15.0	0.0	0.0	82	4.26	65	4.71	250	64	S.	
May.....	72	83	95	61	41	77	69	4.3	9	1.4	1.6	0.0	0.0	83	5.82	66	5.98	282	66	S.	
Spring mean....	64	75	.....	53	.....	.....	.....	14.1	27	7.2	21.1	T.	.....	83	4.41	66	4.78	246	62	S.
June.....	78	88	98	67	46	81	73	5.5	12	3.2	20.1	0.0	0.0	83	7.29	70	7.19	265	62	SW.	
July.....	80	90	104	70	59	82	77	5.3	13	6.7	3.1	0.0	0.0	85	7.95	74	7.84	263	61	SW.	
August.....	79	90	100	69	49	82	77	4.4	10	4.6	2.3	0.0	0.0	88	7.73	75	7.71	254	62	SW.	
Summer mean....	79	89	.....	69	.....	.....	.....	15.2	35	14.5	25.3	0.0	.....	85	7.66	73	7.58	261	62	SW.
September.....	74	85	96	62	39	78	71	3.0	7	0.1	2.5	0.0	0.0	87	6.10	76	6.88	264	71	NE.	
October.....	63	76	90	51	29	68	60	1.8	4	1.0	5.2	0.0	0.0	85	3.98	68	4.32	233	66	NE.	
November.....	54	65	82	43	18	58	50	3.0	7	0.7	4.4	T.	T.	86	3.04	71	3.56	177	56	N.	
Fall mean.....	64	75	.....	52	.....	.....	.....	7.8	18	1.8	12.1	T.	.....	86	4.37	72	4.92	225	64	NE.
Annual mean....	64	74	104	53	-6	.....	.....	53.4	110	44.5	72.0	1.9	8.3	85	4.75	72	5.10	218	58	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25-27; Feb. 5, 6, 16; Nov. 12; Dec. 28, 29.	None.	1899	Jan. 1, 31; Feb. 1, 7, 8, 10-14.	None.
1895	Jan. 1, 13, 14; Feb. 7-9, 13-15, 17; Dec. 6, 14.	Do.	1900	Jan. 2-4, 29; Feb. 1, 17-19.	Do.
1896	Jan. 4, 5, 18; Nov. and Dec. missing.	Aug. and Sept. missing.	1901	Feb. 24; Dec. 14-21....	July 13, 15.
1897	Missing.....	Missing.	1902	Jan. 13, 14; Feb. 3, 11; Dec. 27.	July 8.
1898	do.....	Do.	1903	Jan. 9, 13, 17; Nov. 27; Dec. 7, 27.	None.

MISSISSIPPI.

South Central District: COPIAH COUNTY. Station: CRYSTAL SPRINGS.

D. H. MILLER, Observer.

[Established by Weather Bureau in April, 1892. Latitude, 31° 59' N. Longitude, 90° 26' W. Elevation, 468 feet.]

This station is in the village of Crystal Springs, which is surrounded by a generally rolling and thinly wooded country. The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located in an open place 12 feet west of Mr. Miller's house. The height of the thermometers above sod is 12 feet. The rain gage is 10 feet southwest of the shelter and about 20 feet northeast from the limbs of a tree. The top of the gage is 3 feet above ground.

Mean temperatures were computed from the daily extremes.

Tabulated data are for the period of observation, April 1, 1892, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	48	58	79	38	12	52	43	5.9	8	8.0	4.3	0.2	2.0
January.....	47	57	80	38	15	53	44	5.5	9	8.9	3.1	1.2	8.6
February.....	48	57	81	39	— 7	55	39	5.7	9	3.0	6.2	1.3	4.0
Winter mean.....	48	57	.....	38	.....	.....	.....	17.1	26	19.9	13.6	2.7	.....
March.....	58	69	88	48	24	64	55	5.1	9	4.1	3.3	T.	T.
April.....	65	77	92	54	32	71	60	4.0	7	1.9	12.9	0.0	0.0
May.....	74	85	100	62	41	79	70	4.0	7	0.4	6.3	0.0	0.0
Spring mean.....	66	77	.....	55	.....	.....	.....	13.1	23	6.4	22.5	T.	.....
June.....	79	90	103	68	50	82	73	4.6	9	3.7	7.4	0.0	0.0
July.....	82	92	105	71	59	84	79	6.0	12	5.4	4.9	0.0	0.0
August.....	81	92	104	70	59	84	78	4.8	11	2.5	2.3	0.0	0.0
Summer mean.....	81	91	.....	70	.....	.....	.....	15.4	32	11.6	14.6	0.0	.....
September.....	76	88	99	64	42	80	73	2.6	6	1.2	1.8	0.0	0.0
October.....	66	80	95	53	30	71	62	2.2	4	0.6	5.2	0.0	0.0
November.....	56	68	87	45	17	61	51	2.9	5	2.8	2.4	0.0	0.0
Fall mean.....	66	79	.....	54	.....	.....	.....	7.7	15	4.6	9.4	0.0	.....
Annual mean.....	65	76	105	54	— 7	.....	.....	53.3	96	42.5	60.1	2.7	8.6

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25-27; Dec. 28, 29.	None.	1901	Feb. 23, 24; Dec. 15-18, 20, 22.	June 20, 27; July 10, 12, 13, 15; Aug. 3.
1895	Jan. 1, 13, 14; Feb. 7-9, 13-17; Dec. 6.	Do.	1902	Feb. 3, 4; Dec. 27, 28.	June 11, 12, 17, 18, 30; July 1-4, 6, 7; Aug. 14, 18.
1896	Jan. 4, 5.	May 25; July 2, 26, 28-31; Aug. 5, 21, 22.	1903	Jan. 13; Feb. 17, 18; Nov. 19, 20, 27, 28; Dec. 7.	None.
1897	Jan. 26-30.	June 22, 23, 28; July 3; Aug. 1-5.			
1898	Jan. 2; Dec. 10, 11, 14.	None.			
1899	Jan. 1, 2; Feb. 1, 6-8, 10, 12-14.	June 3, 4; July 17; Aug. 9, 22, 23, 24.			
1900	Jan. 2, 3, 29, 30; Feb. 1, 17, 18.	None.			

MISSISSIPPI.

Southwestern District: ADAMS COUNTY. Station: NATCHEZ.

CHARLES STEITENROTH, Observer.

[Established by Signal Service May, 1887. Latitude, 31° 31' N. Longitude, 91° 31' W. Elevation, 206 feet.]

This station is in the southwestern portion of the city of Natchez, which is situated on the bluffs overlooking the Mississippi River. The bluffs rise very abruptly to an elevation of about 200 feet above the low level country across the river opposite the city. The station is one-fourth of a mile east of the edge of the bluffs.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located near the center of a rather large and level triangular plot of ground. The height of the thermometers above sod is 7 feet.

The rain gage is about 12 feet north of the shelter, and has an unobstructed exposure. The top of the gage is 3 feet above ground.

Mean temperatures were computed from the daily extremes.

Monthly and annual mean temperatures and highest and lowest monthly means, mean precipitation, and total amounts for the driest and wettest years are for the period of observation May 1, 1887, to December 31, 1903. The remaining data are for the period May 1, 1891, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	
December.....	50	60	80	40	11	54	47	3.1	7	9.7	3.5	N.
January.....	49	60	83	40	17	55	43	5.4	8	11.0	2.8	N.
February.....	52	61	82	41	2	63	42	5.3	7	2.4	7.7	N.
Winter mean.....	50	60		40				13.8	22	23.1	14.0	N.
March.....	61	72	90	50	23	67	54	6.4	8	4.2	4.0	N.
April.....	67	78	92	56	35	70	63	4.6	6	1.8	19.2	S.
May.....	74	86	95	63	43	79	71	2.7	5	0.0	1.5	S.
Spring mean.....	67	78		56				13.7	19	6.0	24.7	S.
June.....	80	90	99	69	51	82	75	4.4	8	4.0	5.5	S.
July.....	82	92	105	72	61	84	79	5.4	8	2.5	6.9	S.
August.....	82	92	101	72	53	86	78	5.2	7	1.6	1.0	S.
Summer mean.....	81	92		71				15.0	23	8.1	13.4	S.
September.....	77	88	100	66	46	83	73	2.3	5	1.2	1.8	E.
October.....	67	80	96	55	30	72	64	2.4	3	1.2	2.8	N.
November.....	58	70	88	48	23	65	52	3.3	5	2.6	8.2	N.
Fall mean.....	67	79		56				8.0	13	5.0	12.8	N.
Annual mean.....	66	78	105	56	2			50.5	77	42.2	64.9	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28, 29...	None.	1899	Jan. 1, 2.....	Aug. 2, 13; Sept. 5.
1895	Jan. 13; Feb. 7-9, 13...	Do.	1900	Jan. 3, 29; Feb. 17, 18.	Sept. 17.
1896	Jan. 4, 5.....	Aug. 14.	1901	Dec. 15, 16, 18, 20, 21...	July 12, 13, 15.
1897	Jan. 26-30.....	Aug. 5.	1902	None.....	Aug. 16-18, 22, 23, 26.
1898	Jan. 2; Dec. 11, 14....	None.	1903	Feb. 16, 17.....	None.

MISSISSIPPI.

Southeastern District: PERRY COUNTY. Station: HATTIESBURG.

J. W. BARNES, Observer.

[Established by Signal Service April, 1890. Latitude, 31° 20' N. Longitude, 89° 18' W. Elevation, 154 feet.]

This station is in the town of Hattiesburg, which is situated about one-half mile west of Leaf River. The surrounding country is generally wooded, pine trees predominating.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located in an open place 25 feet northeast of the nearest house—a one-story building. The height of the thermometers above ground is 5 feet.

The rain gage is exposed in an open place 35 feet from the nearest object. The top of the gage is 3 feet above ground.

Mean temperatures were computed from the daily extremes.

Maximum and minimum temperature data, number of days with 0.01 or more precipitation, snowfall, wind, and frost data are for the period of observation 1894 to 1903; the remaining data are for the period April 1, 1890, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	51	61	85	41	13	57	46	4.4	7	6.5	5.2	T.	T.	N.
January.....	49	59	82	39	16	55	44	4.6	8	3.9	6.2	T.	T.	NW.
February.....	52	61	85	42	— 1	63	40	5.3	7	2.8	4.2	0.9	5.0	NW.
Winter mean.....	51	60	.....	40	.....	.....	.....	14.3	22	13.2	15.6	0.9	.....	NW.
March.....	61	72	88	51	24	68	57	4.3	8	2.0	7.0	0.0	0.0	S.
April.....	66	78	93	54	33	70	63	3.3	4	0.5	2.9	0.0	0.0	S.
May.....	75	87	98	63	39	80	70	2.6	5	0.4	4.0	0.0	0.0	S.
Spring mean.....	67	79	.....	56	.....	.....	.....	10.2	17	2.9	13.9	0.0	.....	S.
June.....	81	92	103	71	52	84	77	5.3	9	5.3	1.3	0.0	0.0	S.
July.....	82	92	103	73	60	86	78	6.1	12	3.0	5.3	0.0	0.0	S.
August.....	82	91	103	73	55	85	79	5.3	10	1.8	7.2	0.0	0.0	S.
Summer mean.....	82	92	.....	72	.....	.....	.....	16.7	31	10.1	13.8	0.0	.....	S.
September.....	77	88	101	67	40	82	74	2.5	4	0.8	7.2	0.0	0.0	S.
October.....	67	80	95	54	30	71	64	1.5	2	0.5	4.2	0.0	0.0	N.
November.....	57	68	87	45	21	63	52	2.9	5	1.9	3.0	0.0	0.0	N.
Fall mean.....	67	79	.....	56	.....	.....	.....	6.9	11	3.2	14.4	0.0	.....	N.
Annual mean.....	67	77	103	56	— 1	.....	.....	48.1	81	29.4	57.7	0.9	5.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 25, 26; Dec. 13....	None.	1900	Jan. 2, 3; Feb. 1, 17, 18.	None.
1895	Jan. 1, 13, 31; Feb. 7-9, 12-14, 17, 18, 20.	July 17; Sept. 16.	1901	Dec. 15-18, 20-22.....	July 11-14.
1896	None.	None.	1902	Dec. 27.....	June 10-19, 30; July 1-8, 11, 19; Aug. 14-18, 20-27.
1897	do.	Do.	1903	Jan. 9, 13; Feb. 17; Nov. 19, 20, 27; Dec. 7, 27.	July 6, 21-23.
1898	Jan. 2; Dec. 11.....	Do.			
1899	Feb. 8, 11-14.....	Do.			

MISSISSIPPI.

South Central District: PIKE COUNTY. Station: MAGNOLIA.

H. C. DAVIS, Observer.

[Established by Weather Bureau May, 1895. Latitude, 31° 8' N. Longitude, 90° 27' W. Elevation, 415 feet.]

This station is just beyond the western limit of the town of Magnolia and is surrounded by a gently rolling country, which is rather heavily wooded.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located 15 feet east of Mr. Davis's house, a one-story building. The height of the thermometers above sod is 4½ feet.

The rain gage is 20 feet south of the instrument shelter and 10 feet east of some shrubbery about 6 feet high. The top of the gage is 3 feet above ground.

Mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	49	60	79	38	12	52	46	5.6	9	3.9	5.6	0.2	1.5	N.
January.....	49	60	79	39	17	54	47	5.4	11	6.7	4.0	0.4	1.5	SE.
February.....	50	60	82	40	— 1	55	45	6.5	10	2.8	9.3	0.8	4.0	S.
Winter mean.....	49	60	.....	39	.....	.....	.....	17.5	30	13.4	18.9	1.4	.....	S.
March.....	61	71	87	50	24	62	58	6.3	10	5.0	5.6	T.	T.	S.
April.....	65	77	92	54	32	71	61	5.1	7	1.0	18.2	0.0	0.0	S.
May.....	74	87	101	62	42	80	71	3.2	5	0.3	5.1	0.0	0.0	S.
Spring mean.....	67	78	.....	55	.....	.....	.....	14.6	22	6.3	28.9	T.	.....	S.
June.....	80	91	103	68	50	81	75	5.7	11	8.8	6.6	0.0	0.0	S.
July.....	82	92	105	71	57	83	79	7.6	14	2.4	16.7	0.0	0.0	SW.
August.....	81	91	103	71	61	83	79	6.3	14	5.2	3.1	0.0	0.0	SW.
Summer mean.....	81	90	.....	70	.....	.....	.....	19.6	39	16.4	26.4	0.0	.....	SW.
September.....	76	88	97	64	40	80	73	3.4	7	1.9	1.1	0.0	0.0	S.
October.....	67	80	95	54	29	71	65	2.8	5	0.6	4.9	0.0	0.0	NE.
November.....	58	69	88	47	91	62	53	3.1	6	2.1	1.0	0.0	0.0	N.
Fall mean.....	67	79	.....	55	.....	.....	.....	9.3	18	4.6	7.0	0.0	.....	N.
Annual mean.....	66	77	105	55	— 1	.....	.....	61.0	109	40.7	81.2	1.4	4.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JUNE 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1895	Dec. 6, 31.....	None.	1900	Jan. 3; Feb. 1, 17-19...	None.
1896	Jan. 1, 5.....	July 28-31; Aug. 1-7, 21.	1901	Dec. 15-18, 20-22.....	June 16, 17, 20, 21, 23, 26, 28; July 12-14.
1897	None.....	June 20-23, 26, 29, 30; July 2, 4; Aug. 1-4.	1902	Jan. 14; Feb. 11. Dec. 27	June 16-18; Aug. 18.
1898	Jan. 2, 3; Dec. 11.....	None.	1903	Jan. 9, 13; Feb. 17; Nov. 19, 27, 28, 30; Dec. 7.	None.
1899	Jan. 1, 2; Feb. 8, 9, 12-14.	Do.			

MISSISSIPPI.

Coast District: HARRISON COUNTY. Station: BILOXI.

M. JOSIE POPE, Observer.

[Established by Signal Service January, 1887. Latitude, 30° 26' N. Longitude, 88° 56' W. Elevation, 24 feet.]

This station is in the southern portion of the city of Biloxi, which is situated on the Gulf of Mexico. Luxuriant forests abound in the surrounding country, which is level.

The maximum and minimum thermometers are exposed in a standard instrument shelter, which is located about 20 feet northeast of the observer's residence, and about 50 feet south of several large shade trees. The height of the thermometers above sod is 5 feet.

The rain gage is about 10 feet south of the shelter and 15 feet east of the residence, a one-story house. The top of the gage is 7½ feet above ground.

Mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1887, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				Great- est depth of snow in 24 hours.	Direc- tion of pre- vailing wind.
	Mean.	Mean of the maxi- ma.	Absol- ute maxi- mum.	Mean of the mini- ma.	Absol- ute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	51	59	76	43	15	55	48	4.8	6	5.7	8.3	0.0	N.
January.....	51	59	78	43	19	56	48	3.7	7	1.2	6.3	T.	N.
February.....	53	59	76	43	1	63	43	6.6	8	6.5	9.9	6.2	N.
Winter mean.....	52	59		43				15.1	21	13.4	24.5		N.
March.....	61	69	82	54	30	68	58	6.9	8	5.0	8.0	0.0	S.
April.....	67	75	89	68	38	72	63	3.7	4	2.2	10.2	0.0	S.
May.....	75	84	98	68	40	82	72	3.0	4	2.2	6.8	0.0	S.
Spring mean.....	68	76		60				13.6	16	9.4	25.0		S.
June.....	80	87	98	73	60	83	73	7.0	8	1.2	16.9	0.0	S.
July.....	82	89	100	75	65	85	78	5.5	9	2.2	7.3	0.0	S.
August.....	81	89	100	74	63	85	79	7.5	9	4.8	3.4	0.0	S.
Summer mean.....	81	88		74				20.0	26	8.2	27.6		S.
September.....	77	86	98	69	40	82	71	6.1	6	4.8	7.2	0.0	S.
October.....	68	78	92	59	35	74	63	3.4	3	3.6	3.4	0.0	S.
November.....	59	68	85	50	27	66	55	3.1	5	3.6	1.9	0.0	S.
Fall mean.....	68	77		59				12.6	15	12.0	12.5		S.
Annual mean.....	67	75	100	59	1			61.3	78	43.0	89.6	6.2	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 28, 29.....	June 29, 30; July 1.	1898	None.....	July 21, 22.
1895	Feb. 7-9, 14, 15.....	None.	1899	Feb. 7 11-13.....	None.
1896	Jan. 4.....	May 19, 23-31; June 1, 9, 10, 15, 16, 25-30; July 1, 5, 8, 9, 13-17, 22-31; Aug. 2-5, 7, 9, 10-12, 14, 17-21, 26.	1900	Feb. 17.....	Aug. 19-25; Sept. 16, 17, 30.
		June 19-21, 23; July 6, 17-19, 21, 23-26, 30, 31; Aug. 1-3, 6, 7, 10; Sept. 3.	1901	Dec. 15, 16, 18, 20, 21..	June 17, 18, 27; July 11-15; Aug. 1, 3.
1897	Jan. 26, 27.....		1902	None.....	June 9, 14; July 7, 8; Aug. 18-20, 22-25.
			1903	do.....	June 18; July 20, 21, 23; Aug. 29; Sept. 7.

LOUISIANA.

By I. M. CLINE,
District Forecaster.

LOUISIANA.

Geographical location.—The State of Louisiana lies between latitude 29° and 33° north and longitude 89° and 94° 4' west from Greenwich. That part of the State south of parallel 31° of latitude extends 2° farther east than the northern portion, while the northern portion extends about 45' farther west than the southern portion. The greatest distance between the boundaries of the State lies between the mouth of the Mississippi River and the northwestern corner of the State, about 400 miles.

Topographical and physical features.—Louisiana possesses a varied topography. First, two general subdivisions may be made—the hilly country and the level country. There are three classes of land in the hilly country—the good uplands, the pine lands, and the bluff lands. Five classes of lands are to be found in the level country—the arable alluvial lands, the prairies, the pine flats, the wooded swamps, and the coast marshes. There is an extensive water surface over the eastern and southern portions of the State, which is of great importance. This water surface includes a vast multitude of rivers, creeks, bayous, lakes, and bays.

The good uplands, embracing an area of more than 5,000,000 acres, lie mostly in northern Louisiana and cover the greater part of the parishes of Caddo, De Soto, Sabine, Bossier, Webster, Red River, Claiborne, Bienville, Union, Jackson, Ouachita, Moorehouse, and Caldwell, west of the Mississippi River, and parts of the Felicianas and East Baton Rouge, east of the Mississippi. The uplands are extremely hilly in some places, and there are ridges that reach an elevation of 400 to 500 feet.

The pine hills are in the parishes of Catahoula, Winn, Grant, Natchitoches, Rapides, Vernon, and Calcasieu, west of the Mississippi, and St. Helena, Tangipahoa, Washington, St. Tammany, and Livingston, east of the Mississippi. These parishes all contain fine lands, excepting such as are covered by long-leaf pines. The pine hills embrace nearly 6,000,000 acres. The region of the pine hills is broken. The soil is generally poor and sandy. Ledges of coarse, gray sand rock are very common, and there are numerous petrifications. Where the Red River and other large streams in the State flow through the pine hills large areas of fine alluvial lands are found, and bottom lands which afford good farms are found along the lesser streams.

The bluff lands present the most peculiar and interesting topographic features in Louisiana. The Bayou Macon hills in West Carroll Parish are the beginning of these bluffs in the north; they are then easily traced southward through Richland, Franklin, Catahoula, Rapides, Avoyelles, Felicianas, Baton Rouge, and St. Landry parishes, thence southward into the dreary salt marshes, where the five islands of "Attakapas" loom up, wonderful to behold like mountains in the sea. The highest one of these islands is about 200 feet above the surrounding marshes, and the largest is not more than 2 miles across. The soil of the bluff lands is of a yellowish-gray color and is very fertile. It is easily cultivated, washes badly, gets muddy with the least rain, and becomes intolerably dusty in dry weather. The bluff lands cover an area of nearly 2,000,000 acres.

Many parishes have alluvial lands within their borders, especially along the streams, but East and West Carroll, Madison, Tensas, Concordia, Avoyelles, Pointe Coupee, West Baton Rouge, Iberville, Ascension, Assumption, St. James, St. John the Baptist, and St. Charles are almost wholly alluvial. The lands nearest the streams are moderately sandy and easily worked, while farther back the land is black, stiff, and difficult of cultivation. The arable alluvial lands (nearly 4,000,000 acres) are very productive, and are a source of great wealth.

The wooded alluvial lands border on the arable, which latter verge into wooded portions some distance from the streams and cover an area of probably 2,750,000 acres. Much of the Atchafalaya basin is classed as wooded swamp, but a great part of it is no doubt susceptible of reclamation.

The prairie region of 2,500,000 acres constitutes one of the most interesting parts of Louisiana. This territory is almost entirely west of Bayou Cocodrie. On the south it is limited by the impassable sea marshes into which they pass, often by imperceptible gradation. On the west the Calcasieu and Sabine rivers form the boundary lines. This extensive area thus broadly defined is not an unbroken treeless expansion, for coulees and bayous course through it, generally in a north and south direction, on the borders of which grow fine forests of timber, not least of which is the celebrated Louisiana pecan.

The pine flats cover an area of 1,500,000 acres. We find the pine flats principally in St. Tammany, Tangipahoa, and Livingston parishes in the eastern part of the State, and in Calcasieu in the western part. The soil is sandy and generally classed as poor, but promises much in the line of truck farming.

There are nearly 4,000,000 acres classed as coast marsh. Reference to the coast of Louisiana will be of interest here: it has been divided into two parts. The coast line of the first or eastern division extends from Pearl River to Vermilion Lake in the shape of an arc or section of a circle, having a radius of about 60 miles, with the center of said circle a few miles westward of the southwest corner of Lake Pontchartrain. All this part of the coast is extremely irregular, being indented by numerous bays and cut up by thousands of lakes and bayous into a labyrinth of peninsulas and islands. The coast line of the second or western section extends from Vermilion Bay to Sabine Lake, and is nearly straight. There are no outlying islands, and the whole of this section is exactly opposite to that of the first section. The coast marsh covers an area from Pearl River to Sabine Lake along the Gulf of Mexico, varying in width from 10 to 30 miles. It is low and wet and subject to tidal overflow. Numerous lakes and bayous intersect it, and it is almost impassable in places. It is very irregular. At some points it is difficult to say whether the surface is a lake or a grassy plain, for we encounter what is styled "Trembling Prairies;" the upper surface appearing firm, but underneath a thin and treacherous crust, is an unknown depth of oozy water and mud. Tufts of grass grow here and there every few feet, and the "Trembling Prairie" can only be traversed by stepping from one tuft of grass to another. The sea marsh is found in portions of Cameron, Vermilion, St. Mary,

Terrebonne, Lafourche, Jefferson, Plaquemines, St. Bernard, and Orleans parishes. These parishes, however, have much fertile alluvial land within their borders. The water surface in Louisiana covers more than 2,000,000 acres. There are many fresh-water lakes, too numerous to catalogue, and they, with other water surfaces, form an important element in the physical structure of Louisiana.

Mean temperature.—The annual mean temperature ranges from 65° at Lake Providence to 70° at Port Eads. The range in the annual mean temperature within 100 miles of the coast amounts to but 1°. After passing 100 miles inland the change in temperature is more abrupt, and over the second hundred miles the gradients are steeper than over any other part of the State, where the drop in the mean annual temperature amounts to 2° in about 100 miles. The extreme range in the annual mean temperature over the northern half of the State barely amounts to 1°. The isotherm of 66° passes westward south of Lake Providence to Monroe, thence southward to Alexandria, and then up the Red River Valley to Shreveport. January has the lowest and July the highest mean temperature in all parts of the State, but August has the same mean temperature as July at several stations. The stations with the same mean temperature in July and August are situated in the uplands, the piney woods, and prairie section. The coast marsh and the alluvial lands have the highest mean temperature only in July. The greatest difference in the mean temperature for July and August amounts to but 1°.

The mean temperature for the hottest month is 83° in the coast section and 82° elsewhere, except in the piney woods and prairie sections, where it is 81°. January averages about 1° to 2° colder than December and February over the southern portion, and 2° to 3° colder than the same months over the northern portion of the State. The range in mean temperature between the hottest and coldest months amounts to 36° over the northern portions of the State, and to 29° over the southern portion. The difference between the highest and lowest mean temperature for January amounts to 22° at Shreveport and 19° at New Orleans, while the difference between the highest and lowest mean for July amounts to 8° at Shreveport and 5° at New Orleans. The difference between the mean temperature of the hottest and coldest year amounts to 4° at New Orleans.

Maximum temperature.—There is a narrow strip along the coast where the temperature has never reached 100°, and as far north as New Orleans it has not reached this degree except in one year (1901). The highest temperature in the State occurs over the central portion of north Louisiana and in the region of the pine hills and the uplands. Here the absolute maximum temperature at different stations ranges from 107° to 109°. The isotherm for 102° maximum temperature passes westward through New Orleans, south of Baton Rouge, through Melville, and thence westward to the south of Lake Charles. From Melville to Alexandria the maximum temperature rises from 102° to 109°. The extreme range in the absolute maximum temperature for different portions of the State amounts to 10°.

New Orleans may be taken as a representative station for the extreme southern portion of the State. The temperature has reached 100° in but one year, and while it reaches 90° every year, there have been eleven years out of the past thirty in which the maximum did not go as high as 95°. During thirty years there have been only 73 days when the maximum temperature rose to or above 95° at New Orleans. At Shreveport, in the northern portion of the State, there have been thirteen years during the past thirty years in which the maximum temperature did not reach 100°. During this period of thirty years the maximum temperature at Shreveport rose to or above 100° on one hundred and seventy-seven days.

Minimum temperature.—The absolute minimum temperature ranges from 10° at Port Eads to 5° below zero at Shreveport, which gives 15° as the extreme range for the absolute minimum for the State. The isotherms for minimum temperatures run more nearly east and west than do those for the maximum temperature, but there is a considerable dip northward over the Atchafalaya region in the line for 4°, while that for 2° dips southward over the bluff lands east of the Mississippi to Baton Rouge. During thirty years the minimum temperature at New Orleans has been below 32° on only one hundred and sixteen days, or on an average of four days in each year. There have been, however, three years in which the minimum temperature did not fall below freezing. There have been but eight years, or one in four, with the minimum as low as 22°, and in five of these it occurred on but one day, in one year on two days, in another year on three days, and the other one on five days. The total number of days in thirty years with the temperature as low as 22° is but fifteen. The temperature at New Orleans has fallen below 20° during a period of thirty years in only three years, as follows: 1886, 15°; 1895, 16°, and in 1899, 7°. The mean minimum temperature for the northern portion of the State is about 10° below that for the southern portion. At Shreveport there is an average of twenty-one days in the year with the minimum temperature below 32°. Temperatures of 10° or below seldom occur, even over the northern portion of the State. At Shreveport such temperatures occur but once in six years, and in two years they occurred on but one day in each year, and in the other three years on but two days in each year. This gives a total of eighty days in thirty years with the minimum temperature at Shreveport as low as 10°, and this may be taken to represent the northern portion of the State.

Precipitation.—The average annual rainfall amounts to more than 55 inches over the extreme east portion and gradually diminishes westward over the southern portion of the State to 46 inches. The average annual rainfall ranges from 57.6 inches at New Orleans to 46 inches at Shreveport. The greatest annual rainfall at New Orleans is 85.6 inches and the least annual 31 inches, which gives an absolute range in the annual precipitation for the southern portion of the State amounting to 54.6 inches, which is nearly as large as the average annual rainfall—57.6 inches. The annual rainfall has been less than the normal in fifteen years out of thirty. The annual rainfall at Shreveport is 46 inches, and ranges from a minimum of 23.1 inches to a maximum of 66.6 inches.

Rainy days.—The average number of rainy days over the southeastern portion of the State is one hundred and eight and over the northwestern portion one hundred and three days, while over the northeastern and southwestern portions rain falls on seventy-seven to eighty days.

Snow.—Snow falls on an average of once in three to once in five years over the southern portion of the State, about once in a year over the central portion, and twice a year over the northern portion.

Hail.—Hail occurs on an average about twice a year over the northern part of the State and from once in a year to once in ten years in different localities over the southern part. Hailstorms are not only infrequent but they extend over limited areas.

Thunderstorms.—Thunderstorms occur or thunder is heard on an average of about forty-six times in a year over the Mississippi and Red River valleys. Thunderstorms are reported less frequently from the upland sections than elsewhere. The next smallest number are reported from the prairie section and then comes the piney woods.

Frost.—The last killing frost in spring occurs over an area covering the southeastern portion of the State, which extends about 100 miles inland, on January 24 to 26. The average date of the last killing frost of spring for February 1 occurs on a line passing westward south of Covington, Thibodaux, Morgan City, and Cameron. The average date of the last killing frost of spring for March 1 occurs on a line which passes westward half way between Covington and Amite, through Baton Rouge, Grand Coteau, and Sugartown. The average date of the last killing frost in spring for March 15 occurs on a line passing westward to the south of Amite and Clinton and thence northward through Monroe. The average date of the first killing frost in autumn occurs after December 15 south of New Orleans. The average date of the occurrence of the first killing frost in autumn is November 15 along a line passing westward south of Amite and Melville, thence northward to the west of Alexandria and to the east of Shreveport. Between the above lines for November 15 and December 15 the average date of the last killing frost occurs later in the season with considerable regularity as we leave the line for November 15 and approach the line for December 15. The average date of the first killing frost in autumn occurs quite uniformly over the northeast portion of the State on November 7 or 8.

Winds.—The prevailing winds are from a southerly direction for all months in the year except over the southeastern portion of the State, where the prevailing direction is from the northeast and north from September to December, inclusive.

Influences of physical features.—The topographic features as they exist in Louisiana, varying from extensive stretches of level lands to moderate hills, do not materially influence climatic conditions, but the physical features which exist cause widely different climatic conditions in different parts of the State. The network of bays, bayous, and lakes which permeate the southern portion of the State for more than 100 miles inland play an important part in the control of the daily, seasonal, and annual temperatures and give to this section more of an oceanic than a continental climate. The moderate and equable temperature of the waters from the Gulf of Mexico, which come and go with the tides, keep the temperature of the adjacent lands relatively low during the day and in summer and relatively high during the night and in winter. As a result of these conditions the range in temperature between day and night and the hot and cold seasons is comparatively small. In summer the highest temperature over the southern portion of the State rarely reaches 95°, while in winter the lowest falls below the freezing point on but a few days during the year and then, with rare exceptions, remains so for but a few hours. There are no marked physical features over the northern portion of the State which specially influence the climate of any extensive area. However, prevailing southerly winds from the Gulf of Mexico materially influence the climatic conditions in all parts of the State. They give a fresh and vigorous tone to the atmosphere during the summer months and ameliorate the cold in winter.

Temperatures of the earth's surface vary materially in adjoining localities in all parts of the State, caused by air drainage and also by the differences in radiation and insolation which result from different soil conditions. Dark soils get warmer in the day and colder at night than lighter soils with the same atmospheric conditions.

The marked influences of the physical features on the temperature conditions of southern Louisiana are forcibly illustrated in the rapid changes which take place between latitude 30° 45' and 31°. The average date of the last killing frost in autumn occurs one month earlier on the thirty-first parallel of latitude than it does 50 miles south of that latitude. North of latitude 31° there are not more than ten days' difference between the average date of occurrence of the last killing frost in spring at the several stations. The same difference applies to the first killing frost in autumn.

LIST OF PARISHES AND CLIMATOLOGICAL STATIONS IN LOUISIANA.

Parish.	Station.	District.	Page.	Parish.	Station.	District.	Page.
Acadia (<i>see</i> Melville)		Southwest		Orleans	New Orleans	Coast	415
Ascension (<i>see</i> New Orleans)		Southeast		Ouachita	Monroe	North	407
Assumption (<i>see</i> New Iberia)		do		Plaquemines	Port Eads	Coast	416
Avoyelles (<i>see</i> Melville)		do		Pointe Coupee (<i>see</i> Melville)		Southeast	
Bienvenue (<i>see</i> Shreveport)		Northwest		Rapides	Alexandria	Central	409
Bossier (<i>see</i> Shreveport)		do		Red River (<i>see</i> Shreveport)		Northwest	
Caddo	Shreveport	do	406	Richland (<i>see</i> Monroe)		Northeast	
Calcasieu	Lake Charles	Southwest	413	Sabine (<i>see</i> Alexandria)		Northwest	
Caldwell (<i>see</i> Monroe)		Northwest		St. Bernard (<i>see</i> New Orleans)		Coast	
Cameron (<i>see</i> Lake Charles)		Coast		St. Charles (<i>see</i> New Orleans)		do	
Catahoula (<i>see</i> Alexandria)		Northeast		St. Helena (<i>see</i> Amite)		Southeast	
Claiborne (<i>see</i> Shreveport)		Northwest		St. James (<i>see</i> New Orleans)		Coast	
Concordia (<i>see</i> Natchez, Miss.)		Northeast		St. John the Baptist (<i>see</i> New Orleans)		do	
De Soto (<i>see</i> Shreveport)		Northwest		St. Landry	Melville	Central	410
East Baton Rouge	Baton Rouge	Southeast	411	St. Martin (<i>see</i> New Iberia)		Southeast	
East Carroll	Lake Providence	Northeast	408	St. Mary (<i>see</i> New Iberia)		Coast	
East Feliciana (<i>see</i> Baton Rouge)		Southeast		St. Tammany (<i>see</i> Amite)		Southeast	
Franklin (<i>see</i> Vicksburg, Miss.)		Northeast		Tangipahoa	Amite	do	412
Grant (<i>see</i> Alexandria)		Central		Tensas (<i>see</i> Vicksburg, Miss.)		Northeast	
Iberia	New Iberia	Coast	414	Terre Bonne (<i>see</i> Port Eads)		Coast	
Iberville (<i>see</i> New Iberia)		do		Union (<i>see</i> Monroe)		North	
Jackson (<i>see</i> Monroe)		Northwest		Vermillion (<i>see</i> New Iberia)		Coast	
Jefferson (<i>see</i> New Orleans)		Coast		Vernon (<i>see</i> Alexandria)		Northwest	
Lafayette (<i>see</i> Melville)		Southwest		Washington (<i>see</i> Amite)		Southeast	
Lafourche (<i>see</i> New Orleans)		Coast		Webster (<i>see</i> Shreveport)		Northwest	
Lincoln (<i>see</i> Shreveport)		North		West Baton Rouge (<i>see</i> Baton Rouge)		Southeast	
Livingston (<i>see</i> Monroe)		Northwest		West Carroll (<i>see</i> Lake Providence)		Northeast	
Madison (<i>see</i> Vicksburg, Miss.)		Northeast		West Feliciana (<i>see</i> Baton Rouge)		Southeast	
Morehouse (<i>see</i> Lake Providence)		do		Winn (<i>see</i> Alexandria)		Central	
Natchitoches (<i>see</i> Alexandria)		Northwest					

STATE SUMMARY, LOUISIANA.

Station.	Number.	Temperature.									
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number days with—		
		° F.	° F.	° F.	° F.		° F.		Maximum above 90°.	Minimum below 32°.	
Shreveport.....	1	66	75	56	107	July, 1901.....	- 5	February, 1899.....	77	21	
Monroe.....	2	66	76	55	108	.....do.....	- 3	.....do.....	79	30
Lake Providence.....	3	65	77	54	106	August, 1896.....	- 4	.....do.....	69	37
Alexandria.....	4	66	78	54	109	July, 1901.....	- 2	February, 1894.....	90	33	
Melville.....	5	67	76	56	102	.....do.....	5	February, 1899.....	76	25
Baton Rouge.....	6	67	78	57	103	.....do.....	2	.....do.....	72	16
Amite.....	7	67	79	55	105	June, 1897.....	3	.....do.....	93	27
Lake Charles.....	8	67	78	56	103	July, 1901.....	3	.....do.....	72	13
New Iberia.....	9	68	77	59	101	.....do.....	6	.....do.....	32	9
New Orleans.....	10	69	76	62	102	.....do.....	7	.....do.....	28	4
Port Eads.....	11	70	76	64	99	June, 1900.....	10	.....do.....	16	3

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Shreveport.....	1	Nov. 11	Mar. 4	Oct. 20	Apr. 2	Inches. 40.1	Inches. 13.1	Inches. 9.4	Inches. 10.9	Inches. 12.7
Monroe.....	2	Nov. 7	Mar. 15	Oct. 10	Mar. 29	47.5	13.0	12.1	9.0	13.4
Lake Providence.....	3	Nov. 8	Mar. 14	Oct. 15	Mar. 30	50.9	13.9	15.4	8.0	13.6
Alexandria.....	4	.....do.....	Mar. 12	Oct. 19	Apr. 9	54.9	12.8	15.2	9.9	17.0
Melville.....	5	Nov. 3	Mar. 11	Oct. 10	Mar. 29	53.6	12.9	15.3	9.5	15.9
Baton Rouge.....	6	Nov. 21	Feb. 28	Oct. 27	Mar. 20	54.6	12.6	16.9	10.2	14.9
Amite.....	7	Nov. 6	Mar. 16	Oct. 19	Apr. 1	60.1	14.0	10.7	9.5	16.0
Lake Charles.....	8	Nov. 28	Feb. 24	Nov. 4	Mar. 29	53.3	9.9	17.9	11.3	14.2
New Iberia.....	9	Nov. 30	.....do.....	Nov. 3	Mar. 20	53.7	10.9	19.7	9.1	14.0
New Orleans.....	10	Dec. 15	Jan. 24	Nov. 11	Mar. 27	57.6	14.3	18.2	11.5	13.6
Port Eads.....	11	Dec. 20	Jan. 26	Dec. 5	Mar. 17	55.2	10.3	19.0	13.7	12.2

LOUISIANA.

Northwestern District: CADDO PARISH. Station: SHREVEPORT.

J. W. CRONK, Observer.

[Established September 2, 1871. Latitude, 32° 30' N. Longitude, 93° 40' W. Elevation, 197 feet.]

The office has been consecutively located in six different buildings, all in the business part of the city.

The present location is in the Government building (post-office and custom-house), on the fourth or top floor; the building is near the business center of the city.

The present exposure of the thermometers is in an instrument shelter of standard pattern on the flat portion of an irregularly shaped roof, about 12 feet above the roof and about 77 feet above the ground. The other instruments are in close proximity, the rain and snow gages are about 77 feet above the ground, and the wind vane, anemometer, and sunshine recorder are from about 84 to 85 feet above ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the Max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 49	° F. 58	° F. 79	° F. 41	° F. 10	° F. 63	° F. 41	In. 4.3	9	In. 3.5	In. 2.2	In. 0.5	In. 7.0	P.ct. 81	Gr. 2.67	P.ct. 63	Gr. 2.85	S.
January.....	46	55	80	38	1	61	39	4.5	11	4.0	3.7	0.6	3.5	81	2.48	66	2.79	S.
February.....	50	59	81	42	5	58	40	3.9	10	1.6	6.2	0.7	2.5	79	2.60	62	2.81	S.
Winter mean.....	48	57	80	40	5	60	40	12.7	30	9.1	12.1	1.8	.....	80	2.58	64	2.82	S.
March.....	58	68	90	49	22	65	53	4.6	10	3.0	6.2	0.2	2.0	79	3.22	59	3.50	S.
April.....	66	77	96	57	32	70	61	4.6	9	2.2	8.4	0.0	0.0	81	4.50	58	4.63	S.
May.....	74	83	101	64	42	78	70	3.9	8	2.6	3.2	0.0	0.0	84	6.28	63	6.28	S.
Spring mean.....	66	76	96	56	32	71	61	13.1	27	7.8	17.8	0.2	.....	81	4.67	60	4.80	S.
June.....	80	90	104	70	53	86	74	3.8	9	1.1	2.7	0.0	0.0	85	7.71	64	7.44	S.
July.....	83	93	107	73	62	88	80	3.5	9	1.0	10.8	0.0	0.0	86	8.30	66	8.41	S.
August.....	82	92	106	72	54	87	78	2.1	7	0.6	1.2	0.0	0.0	87	7.89	65	7.79	SE.
Summer mean.....	82	92	106	72	54	87	78	9.4	25	2.7	14.7	0.0	.....	86	7.97	65	7.88	S.
September.....	76	86	101	66	45	82	73	3.5	7	0.5	11.6	0.0	0.0	85	6.57	63	6.68	SE.
October.....	66	77	95	56	35	72	62	3.2	6	1.5	2.7	0.0	0.0	85	4.56	60	4.73	SE.
November.....	56	65	86	46	18	61	46	4.2	8	1.4	7.4	0.0	0.0	84	3.31	62	3.44	S.
Fall mean.....	66	76	96	56	18	68	56	10.9	21	3.4	21.7	0.0	.....	85	4.81	62	4.97	SE.
Annual mean.....	66	75	107	56	5	75	61	46.1	103	23.0	66.3	2.0	7.0	83	5.01	63	5.12	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	None.....	July 1.	1900	None.....	None.
1895	Feb. 7, 8.....	None.	1901	do.....	July 13, 15.
1896	None.....	July 30, 31; Aug. 1, 2, 5-7, 15, 18, 21.	1902	do.....	None.
1897	do.....	July 25, 26; Aug. 3, 4, 6.	1903	do.....	Do.
1898	do.....	None.			
1899	Feb. 12, 13.....	July 29; Aug. 1-3, 7-10, 13, 20-24, 27; Sept. 4.			

LOUISIANA.

Upland Section: OUACHITA PARISH. Station: MONROE.

A. A. MUELLER, Jr., Observer.

[Established by the United States Signal Service in 1887. Latitude, 32° 29' N. Longitude, 92° 2' W. Elevation, 82 feet.]

This station is located in the central part of the town of Monroe, on the Ouachita River. The immediate locality is level, but the surrounding country is rolling, with hills ranging in elevation from 100 to 500 feet above sea level.

The maximum and minimum thermometers, of standard Weather Bureau pattern, are exposed in the regulation voluntary station shelter on a high embankment east of the river and 8 feet from the nearest building. They are 6 feet 11 inches above sod. Monthly mean temperatures were obtained from the daily extremes. The top of the rain gage which is near the instrument shelter is 3 feet above sod.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	50	60	79	39	11	61	44	4.1	8	0.5	9.8	0.4	3.0
January.....	47	56	80	38	14	56	43	4.7	9	3.0	5.8	0.6	2.0
February.....	50	59	80	40	- 3	58	44	4.6	8	7.0	6.8	0.8	2.0
Winter mean.....	49	58		39				13.4	25	10.5	22.4	1.8	
March.....	58	67	93	48	20	62	53	5.3	8	4.5	5.1	0.1	1.0
April.....	66	77	92	56	34	72	62	4.3	7	2.7	10.6	0.0	0.0
May.....	74	84	96	63	42	78	70	3.4	7	1.2	1.8	0.0	0.0
Spring mean.....	66	76		56				13.0	22	8.4	17.5	0.1	
June.....	80	90	101	70	46	82	75	4.3	9	1.3	4.9	0.0	0.0
July.....	82	92	108	72	59	86	81	4.1	8	0.0	8.4	0.0	0.0
August.....	82	92	106	72	54	85	78	3.7	9	2.2	3.9	0.0	0.0
Summer mean.....	81	91		71				12.1	26	3.5	17.1	0.0	
September.....	76	87	102	65	43	82	73	2.6	6	3.1	4.0	0.0	0.0
October.....	65	78	97	52	33	72	61	2.4	5	5.0	1.5	0.0	0.0
November.....	56	67	85	44	20	62	50	4.0	7	5.4	4.8	0.0	0.0
Fall mean.....	66	77		54				9.0	18	13.5	10.3	0.0	
Annual mean.....	66	76	108	55	- 3			47.5	91	35.9	67.3	1.9	3.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	None.....	July 2.	1899	Feb. 12-14.....	Aug. 1-3, 9, 10, 13, 14, 23, 25; Sept. 5-7.
1895	Feb. 7, 8.....	None.	1900	None.....	Sept. 16, 17.
1896	None.....	July 31; Aug. 1-3, 6, 7.	1901	.....do.....	June 16; July 3, 7, 10-16.
1897	.....do.....	June 21; July 26, 27; Aug. 2, 4-6; Sept. 4, 5.	1902	.....do.....	None.
1898	.....do.....	None.	1903	.....do.....	July 5, 6, 8, 9; Aug. 8.

LOUISIANA.

Upper Alluvial Section: EAST CARROLL PARISH. Station: LAKE PROVIDENCE.

V. M. PURDY, Observer.

[Established by the U. S. Signal Service in 1887. Latitude, 32° 48' N. Longitude, 91° 5' W. Elevation, 107 feet.]

This station is the town of Lake Providence, in the extreme northeastern portion of the State and near the Mississippi River. The surrounding country is mostly level, and there are some swamp lands along the Mississippi.

The maximum and minimum thermometers used are exposed under a shed twelve feet wide running north and south and are 5 feet from the ground. The rain gage is exposed in an open space, is 30 feet from the nearest obstruction, and 2 feet above ground. Monthly mean temperatures are obtained from the daily extremes.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. The record is much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Snow.	
										Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	49	62	85	37	9	57	47	3.8	7	0.8	6.0
January.....	48	59	84	36	10	54	42	4.9	8	0.2	2.6
February.....	48	59	85	35	— 4	53	41	4.9	11	1.7	7.0
Winter mean.....	48	60		36				13.6	21	2.7	
March.....	58	68	90	47	22	62	50	6.4	8	0.3	2.0
April.....	68	78	92	57	36	76	62	3.6	5	0.0	0.0
May.....	73	83	98	63	40	80	69	3.9	6	0.0	0.0
Spring mean.....	66	76		56				13.9	19	0.3	
June.....	78	90	99	68	50	83	73	6.1	7	0.0	0.0
July.....	82	92	104	72	61	86	78	4.5	8	0.0	0.0
August.....	82	92	106	72	58	87	78	4.8	6	0.0	0.0
Summer mean.....	81	91		71				15.4	21	0.0	
September.....	76	87	100	66	45	81	70	2.9	6	0.0	0.0
October.....	66	80	95	53	31	71	62	2.1	3	0.0	0.0
November.....	57	69	89	45	18	63	52	3.0	5	0.0	0.0
Fall mean.....	66	79		55				8.0	14	0.0	
Annual mean.....	65	77	106	54	— 4			50.9	75	3.0	7.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 29.....	None.	1899	Feb. 12, 13.....	Sept. 5.
1895	Feb. 7, 8.....	Do.	1900	None.....	None.
1896	None.....	July 15, 16, 30, 31; Aug. 6, 7, 9, 12-14, 16, 17.	1901	Dec. 15, 16, 20.....	July 12, 13.
1897	Incomplete.....	July 27.	1902	Jan. 30.....	Aug. 18.
1898	.....do.....	Incomplete.	1903	None.....	None.

LOUISIANA.

Pine Hills and Central Alluvial Section: RAPIDES PARISH. Station: ALEXANDRIA.

M. V. CRAWFORD, Observer.

[Established by the U. S. Signal Service in 1889. Latitude, 31° 18' N. Longitude, 92° 22' W. Elevation 77 feet.]

This station is located in the central part of the town of Alexandria, on the Red River. Excepting the alluvial lands of the bottoms, the surrounding country is hilly, and there is much timber, mostly long-leaf pine. In some instances, the hills reach a height of 200 to 300 feet.

The maximum and minimum thermometers, of standard Weather Bureau pattern, are exposed in a regulation shelter over sod and 25 feet from the nearest tree or building. They are 6 feet 10 inches from the ground. The rain gage is exposed near the instrument shelter, the top being 4 feet above the ground. Monthly mean temperatures obtained from the daily extremes.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. The record is broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	50	61	79	38	10	52	48	5.3	8	0.9	3.4	0.7	8.0
January.....	49	59	87	38	17	53	44	5.7	10	5.8	8.1	0.1	1.0
February.....	50	60	81	41	2	56	43	6.0	10	1.0	4.4	1.3	8.0
Winter mean.....	50	60		39				17.0	28	7.7	15.9	2.1	
March.....	59	70	89	48	20	65	50	5.4	9	3.9	9.2	0.0	0.0
April.....	67	79	93	55	29	71	62	3.8	7	2.2	10.6	0.0	0.0
May.....	74	86	98	61	40	78	70	3.6	7	1.2	3.7	0.0	0.0
Spring mean.....	67	78		55				12.8	23	7.3	23.5	0.0	
June.....	79	90	106	68	45	83	75	5.6	12	14.6	11.8	0.0	0.0
July.....	82	93	109	70	59	85	79	5.2	11	6.7	5.4	0.0	0.0
August.....	82	93	107	70	48	86	76	4.4	11	0.8	7.1	0.0	0.0
Summer mean.....	81	92		69				15.2	34	22.1	24.3	0.0	
September.....	76	89	101	64	40	83	71	2.8	6	0.3	3.2	0.0	0.0
October.....	66	81	98	51	28	72	61	2.6	6	0.2	3.9	0.0	0.0
November.....	57	69	88	44	19	63	52	4.5	7	4.8	4.9	0.0	0.0
Fall mean.....	66	80		53				9.9	19	5.3	12.0	0.0	
Annual mean.....	66	78	109	54	2			54.9	104	42.4	75.7	2.1	8.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 29.....	None.	1900	None.....	June 17; Aug. 22, 23; Sept. 16-18.
1895	Feb. 8.....	Do.	1901	do.....	June 15-18, 20-24, 26-29; July 3, 11-13, 15-17; Aug. 3, 4, 8, 11, 13, 17.
1896	None.....	July 31; Aug. 1, 2, 4, 6, 7, 14.	1902	do.....	June 10, 11, 14-19, 30; July 1, 8, 9, 12; Aug. 3-6, 9-11, 16-27; Sept. 8.
1897	do.....	June 22, 23; July 2, 27; Aug. 4, 5, 9-11.	1903	do.....	None.
1898	do.....	July 23.			
1899	Feb. 12, 13.....	July 18, 30, 31; Aug. 1-4, 7-10, 13, 14, 22-24; Sept. 5, 6.			

LOUISIANA.

"New Acadia:" ST. LANDRY PARISH. Station: MELVILLE.

C. W. STONE, Observer.

[Established by the U. S. Signal Service in 1887. Latitude, 30° 42' N. Longitude, 91° 39' W. Elevation, 45 feet.]

This station is located in the town of Melville, on the Atchafalaya River.

The land in the surrounding country is undulating and is both alluvial and prairie and areas of timber appear frequently.

The thermometer shelter is of the standard pattern furnished voluntary stations and is 150 feet from the Texas and Pacific Railroad depot. The thermometers, standard maximum and minimum, are 3 feet 6 inches above the sod. The rain gage is of standard pattern and is exposed over the sod near the shelter with its top 4 feet above the ground. The monthly mean temperatures are obtained from the daily extremes.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. The record is broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	52	66	87	41	10	64	48	5.0	6	2.7	7.3	T.	T.
January.....	51	62	86	40	16	66	45	5.4	8	5.6	5.7	T.	T.
February.....	53	63	83	43	5	62	43	5.5	9	1.9	8.8	1.4	14.0
Winter mean.....	52	64	86	41	10	64	45	15.9	22	10.2	21.8	1.4	14.0
March.....	61	72	88	50	25	67	58	5.3	7	2.2	4.4	0.0	0.0
April.....	68	78	90	58	38	76	63	4.5	5	2.2	11.0	0.0	0.0
May.....	75	85	95	64	45	83	72	3.1	5	0.6	0.6	0.0	0.0
Spring mean.....	68	78	90	57	38	76	63	12.9	17	5.0	16.0	0.0	0.0
June.....	79	90	99	69	51	81	77	4.7	10	5.4	6.7	0.0	0.0
July.....	82	92	102	72	61	84	78	4.9	9	5.0	4.8	0.0	0.0
August.....	81	92	100	70	54	84	78	5.7	9	6.2	6.4	0.0	0.0
Summer mean.....	81	91	99	70	54	84	78	15.3	28	16.6	17.9	0.0	0.0
September.....	77	88	97	66	42	81	74	2.9	5	0.7	3.3	0.0	0.0
October.....	67	80	96	54	32	72	64	3.0	4	0.5	4.4	0.0	0.0
November.....	59	71	87	46	21	62	54	3.6	6	1.8	5.7	0.0	0.0
Fall mean.....	68	80	92	55	32	72	64	9.5	15	3.0	13.4	0.0	0.0
Annual mean.....	67	78	102	56	5	76	63	53.6	82	34.8	69.1	1.4	14.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 28, 29.....	Incomplete.	1900	Jan. 2, 3; Feb. 1, 2, 17-19.....	None.
1895	Jan. 1, 11; Feb. 7-9, 17; Dec. 6.....	None.			Do.
1896	Jan. 1, 5.....	Do.	1901	Dec. 15-22.....	July 13.
1897	Jan. 27-30.....	Do.	1902	Feb. 10.....	Aug. 17.
1898	Jan. 2, 3; Dec. 11.....	Do.	1903	Jan. 9; Nov. 10, 27; Dec. 7, 27.....	None.
1899	Jan. 2; Feb. 8, 12-14.....	Do.			

LOUISIANA.

Bluff Lands: EAST BATON ROUGE PARISH. Station: BATON ROUGE (State University).

Prof. H. A. MORGAN, Observer.

[Established by the U. S. Signal Service in 1887. Latitude, 30° 27' N. Longitude, 91° 11' W. Elevation, 62 feet.]

This station is located on the campus of the State University, which is to the north of and adjoining the city of Baton Rouge.

There is considerable timber in the neighborhood. The town and surrounding country are on bluffs nearly 100 feet above the river and near the southern extremity of the bluff lands on the east side of the river. The contour is broken with numerous small hills.

The thermometer shelter, of standard Weather Bureau pattern, is located in an open space on the campus of the State University and 100 yards east of the Mississippi River.

The maximum and minimum thermometers are of standard pattern. The rain gage is exposed at least 100 feet from the nearest tree. Its top is 2 feet above the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	52	63	84	41	14	56	48	4.8	9	3.8	7.1	0.0	0.0
January.....	51	62	84	41	20	62	43	5.1	9	7.1	4.8	0.0	0.0
February.....	54	63	82	44	2	62	43	5.0	9	2.8	5.1	1.4	12.5
Winter mean.....	52	63		42				14.9	27	13.7	17.0	1.4	
March.....	61	71	89	50	25	69	55	5.2	9	3.0	5.8	0.0	0.0
April.....	68	78	90	58	32	71	64	4.5	6	2.2	7.3	0.0	0.0
May.....	75	85	96	64	40	78	72	2.9	6	1.6	4.6	0.0	0.0
Spring mean.....	68	78		57				12.6	21	6.8	17.7	0.0	
June.....	79	89	100	70	54	82	73	5.5	12	9.6	4.8	0.0	0.0
July.....	82	91	103	72	62	84	76	5.8	14	2.2	5.4	0.0	0.0
August.....	81	91	99	71	53	84	79	5.6	14	2.8	10.7	0.0	0.0
Summer mean.....	81	90		71				16.9	30	14.6	20.9	0.0	
September.....	77	88	98	68	44	82	74	3.4	8	1.1	1.9	0.0	0.0
October.....	68	81	94	55	32	72	64	3.3	6	1.8	5.9	0.0	0.0
November.....	59	70	88	48	23	64	54	3.5	6	1.9	4.1	0.0	0.0
Fall mean.....	68	80		57				10.2	20	4.8	11.9	0.0	
Annual mean.....	67	78	103	57	2			54.6	108	39.9	67.5	1.4	12.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 25; Dec. 28, 29...	June 28-30; July 1-3.	1899	Feb. 8, 12-14.....	June 4, 16; July 16-19, 22, 23, 29-31; Aug. 1, 2, 6-13, 21-23; Sept. 2-5, 11.
1895	Feb. 7-9, 17.....	June 2; July 8-11, 15-18, 29; Sept. 7, 10.	1900	Jan. 3; Feb. 18.....	June 9; July 6; Aug. 21; Sept. 16, 17.
1896	Jan. 4.....	May 30; June 29, 30; July 2, 23, 28-31; Aug. 1, 2, 5-8, 13, 14, 18-23, 30; Sept. 18-20, 22.	1901	Dec. 15-17, 19-21.....	June 15-17, 19-24, 26-28; July 1, 11-14, 31; Aug. 2-4, 11, 12.
1897	Jan. 27, 28.....	June 20-24, 27, 29, 30; July 1-3, 7-9, 25, 26; Aug. 1-4, 7-10; Sept. 2.	1902	None.....	June 9-15, 18, 26, 30; July 1, 2, 4, 7, 8, 12, 13; Aug. 11-13, 16-18, 20-27, 30.
1898	Jan. 2.....	May 27, 31; June 6; July 6, 20-23; Aug. 18, 22; Sept. 1, 2.	1903	Feb. 17, 18.....	July 21, 22; Sept. 27.

LOUISIANA.

Eastern Pine Lands: TANGIPAHOA PARISH. Station: AMITE.

L. M. WENTZ, Observer.

[Established by the U. S. Signal Service in 1887. Latitude, 30° 45' N. Longitude, 90° 27' W. Elevation, 130 feet.]

This station is situated in the town of Amite, on the park of the Illinois Central Railway, near the depot. The town is in the pine woods section; some parts of the country are hilly, while other parts are level.

The shelter is of standard Weather Bureau pattern with sod exposure, and is 125 feet from the nearest building. The standard maximum and minimum thermometers are 10 feet 2 inches above the ground. The rain gage is exposed in an open space 100 feet from any building or tree, and its top is 2 feet above the ground.

The temperature means are obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
December.....	° F. 51	° F. 65	° F. 87	° F. 40	° F. 10	° F. 56	° F. 46	In. 4.7	7	In. 7.1	In. 6.2	In. 0.2	In. 3.0
January.....	51	62	83	40	18	63	44	6.0	8	2.4	6.6	T.	T.
February.....	53	64	84	42	3	63	44	6.2	9	5.2	12.6	0.6	6.0
Winter mean.....	52	64		41				16.9	25	14.7	25.4	0.8	
March.....	61	73	90	50	20	68	58	6.0	9	4.1	5.3	1.0	6.0
April.....	67	79	91	56	28	72	62	4.9	6	3.7	17.4	0.0	0.0
May.....	74	86	98	63	42	78	71	3.1	6	1.4	4.7	0.0	0.0
Spring mean.....	67	79		56				14.0	21	9.2	27.4	1.0	
June.....	80	91	105	68	50	82	76	5.7	11	2.5	8.0	0.0	0.0
July.....	81	92	104	70	53	83	78	7.3	13	2.8	4.9	0.0	0.0
August.....	81	92	104	70	50	85	77	6.7	14	1.4	5.2	0.0	0.0
Summer mean.....	81	92		69				19.7	38	6.7	18.1	0.0	
September.....	77	89	99	65	44	81	75	3.7	8	5.4	1.6	0.0	0.0
October.....	67	81	98	52	29	72	62	2.1	4	2.8	3.8	0.0	0.0
November.....	58	71	89	46	22	63	54	3.7	6	2.6	2.2	0.0	0.0
Fall mean.....	67	80		54				9.5	18	10.8	7.6	0.0	
Annual mean.....	67	79	105	55	3			60.1	102	41.4	78.5	1.8	6.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 13; Mar. 29, 30; Dec. 28, 29.	June 30; July 1.	1898	Jan. 2, 3; Dec. 11.....	None.
1895	Jan. 1; Feb. 7-9, 17; Dec. 4, 6, 31.	None.	1899	Feb. 8, 9, 12-14.....	July 23; Aug. 2, 8-10.
1896	Jan. 5; Mar. 20.....	July 31; Aug. 1, 6, 22.	1900	Jan. 3, 4; Feb. 1, 18, 19.	None.
1897	None.	June 21-24; July 1-4; Aug. 2, 4.	1901	Dec. 15, 16-22, 31.....	June 15-17, 19, 21, 27, 28; July 12-15.
			1902	Jan. 1, 8.....	June 9, 14-18; Aug. 16, 17, 20-23, 26, 27.
			1903	Jan. 9; Feb. 7; Nov. 19, 27; Dec. 7.	None.

LOUISIANA.

Prairie Section: CALCASIEU PARISH. Station: LAKE CHARLES.

W. S. MATHENY, Observer.

[Established by the U. S. Signal Service in the latter part of 1887. Latitude, 30° 12' N. Longitude, 93° 0' W. Elevation, 22 feet.]

This station is located in the town of Lake Charles. The surrounding country is mostly prairie, that in this section begins to merge into the coast marsh, causing a portion of the surrounding country to be low and wet. The town is situated on the northeast side of a lake which is circular in shape and about 2 miles in diameter. The banks of the lake are 20 feet high in some places, while in other places they are almost level with the water.

The maximum and minimum thermometers are of standard Weather Bureau pattern, and exposed in a regulation voluntary station shelter over sod in an open square of ground. The top of the rain gage is about 2 feet above ground; the gage is exposed in the open.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. The record is somewhat broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	53	64	88	41	19	60	48	3.8	6	6.8	7.0	0.0	0.0
January.....	52	62	82	40	10	62	44	5.8	7	7.2	5.4	0.1	0.5
February.....	53	63	86	42	3	60	45	4.6	6	1.4	6.1	2.7	22.0
Winter mean.....	53	63		41				14.2	19	15.4	18.5	2.8	
March.....	60	71	86	50	20	66	56	4.4	7	3.1	3.9	0.0	0.0
April.....	67	78	90	56	35	72	63	2.7	4	3.4	6.1	0.0	0.0
May.....	74	85	98	62	43	78	60	2.8	4	0.3	6.8	0.0	0.0
Spring mean.....	67	78		56				9.9	15	6.8	16.8	0.0	
June.....	80	90	101	69	52	83	76	6.9	9	7.8	10.1	0.0	0.0
July.....	81	92	103	70	54	84	76	5.8	9	3.5	8.0	0.0	0.0
August.....	81	92	102	70	50	86	76	5.2	9	3.1	4.0	0.0	0.0
Summer mean.....	81	91		70				17.9	27	14.4	22.1	0.0	
September.....	77	88	98	66	42	83	71	3.0	6	1.1	1.4	0.0	0.0
October.....	69	81	103	56	34	73	62	3.4	4	0.1	10.5	0.0	0.0
November.....	60	71	92	48	22	66	51	4.9	6	3.5	5.8	0.0	0.0
Fall mean.....	69	80		57				11.3	16	4.7	17.7	0.0	
Annual mean.....	67	78	103	56	3			53.3	77	41.3	75.1	2.8	22.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 23, 24; Dec. 29.	June 30; July 1-3; Aug. 12, 13.	1899	Feb. 8, 9, 12-15.	June 17, 18; July 9, 10, 18-26, 30, 31; Aug. 1-4, 8-16, 21-28, 30; Sept. 4, 5, 12.
1895	Feb. 7, 8.	June 1, 2; July 15-21; Aug. 15; Sept. 10-12, 14.	1900	Feb. 17, 18.	June 11; Aug. 21, 22; Sept. 6, 8, 15-17; Oct. 2, 3.
1896	None.	May 30; June 3, 6, 10, 12, 16, 23, 27, 28, 30; July 1, 4-7, 9, 10, 23, 25, 26, 28-30; Aug. 1, 5, 6, 9, 10, 18, 20, 24.	1901	Dec. 18, 19, 21, 22.	June 13, 14, 16-21, 23, 26-28; July 3, 5, 11-18, 31; Aug. 2-5, 8, 12-14.
1897	Jan. 27, 28.	June 22-24, 27, 28; July 1, 7, 8, 10, 11, 15, 16, 25-31; Aug. 1-6, 9-11, 24; Sept. 5, 29, 30.	1902	None.	June 9-11, 19, 21; July 9, 11-14, 27; Aug. 1-7, 9, 11-31; Sept. 4, 6-9.
1898	None.	June 19, 22; July 6, 10, 21-24, 26, 27; Aug. 1, 6, 8, 13, 16-19, 21-23, 25; Sept. 3; Oct. 4.	1903	Feb. 17.	July 12, 19, 21-23; Aug. 16, 17, 29, 30; Sept. 14.

LOUISIANA.

"The Attakapas": IBERIA PARISH. Station: NEW IBERIA.

Mrs. JOHN A. GEBERT, Observer.

[Established in December, 1887. Latitude, 30° 1' N. Longitude, 90° 47' W. Elevation, 15 feet.]

This station is near the eastern boundary of New Iberia. Much timber is growing in the neighborhood. The name of the locality is taken from its history rather than from its topographic features, which are varied, partaking of three classes, bluff lands, prairies, and marsh lands. The sea marsh extends north into the southern portion of Iberia Parish, and a line of forest trees, mostly heavy cypress, stands as a wall between the marsh and the tillable lands.

The maximum and minimum thermometers are exposed in a latticed shelter attached to the north side of Mrs. Gebert's residence, and are 10 feet above the ground: The shelter is an old style wall shelter, after the pattern formerly used at cotton-region stations. The rain gage, of standard pattern, is exposed over a grass plot about 100 feet from the nearest tree.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	55	65	90	45	19	66	48	4.6	7	1.6	7.0		
January.....	53	63	84	44	19	66	46	4.3	7	6.1	4.4	0.0	0.0
February.....	51	63	85	45	6	66	43	5.1	7	1.9	7.9	1.3	13.5
Winter mean.....	53	64		45				14.0	21	9.6	19.3	1.3	
March.....	63	72	84	53	25	68	59	3.4	6	3.3	6.6	0.0	0.0
April.....	68	78	88	59	36	72	62	4.7	4	2.7	8.7	0.0	0.0
May.....	74	84	95	65	48	78	73	2.8	5	0.3	4.4	0.0	0.0
Spring mean.....	68	78		59				10.9	15	6.3	19.7		
June.....	80	88	100	71	55	82	76	7.0	10	8.6	9.9	0.0	0.0
July.....	82	89	101	74	65	83	79	5.9	10	5.7	7.0	0.0	0.0
August.....	81	89	97	73	55	83	80	6.8	10	3.0	12.6	0.0	0.0
Summer mean.....	81	89		73				19.7	30	17.3	29.5		
September.....	77	87	95	68	47	81	75	3.5	6	0.3	2.3	0.0	0.0
October.....	69	80	95	58	35	72	65	2.8	4	0.0	3.8	0.0	0.0
November.....	61	70	92	51	23	66	57	2.8	4	1.2	1.6	0.0	0.0
Fall mean.....	69	79		59				9.1	14	1.5	7.7		
Annual mean.....	68	77	101	59	6			53.7	80	34.7	76.2	1.3	13.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 25; Dec. 28, 29.	June 30; July 1-3.	1899	Feb. 8, 12-14.	July 30, 31; Aug. 1, 2.
1895	Feb. 7-9.	July 17.	1900	Jan. 3; Feb. 17, 18.	None.
1896	None.	May 24, 30; June 29; Aug. 21, 22.	1901	Dec. 15-21.	June 14, 16-21, 25, 27, 28; July 12-16.
1897	Jan. 27, 28.	June 20-22, 30; July 1; Aug. 3, 4, 10.	1902	None.	None.
1898	None.	July 21, 22.	1903	.....do.....	Do.

LOUISIANA.

Coast District: ORLEANS PARISH. Station: NEW ORLEANS.

L. M. CLINE, District Forecaster.

[Established October 24, 1870. Latitude, 29° 58' N. Longitude, 90° 4' W. Elevation, 8 feet.]

The office was first opened at No. 281 Carondelet street, but was moved on November 18, 1870, to No. 222 Custom-house street, where it remained for about ten years. On March 3, 1880, the office was moved into the United States custom-house, where it is now located.

The location of the local office of the Weather Bureau is in the center of the business part of New Orleans. The exposure of the instruments appears to have been fairly good at all times; the present exposure is very satisfactory for a roof exposure. The thermometer shelter is of standard pattern and is located on the northern end of the building. The dry bulb thermometer is 11.5 feet above the roof and 88.5 feet above ground. The rain gage is 78.1 feet, and the anemometer is 121.1 feet above ground.

Sunshine data are from 1890-1903; humidity fifteen years, 1889-1903. Remainder of tabulated data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	P. c.	Gra.	P. c.	Gra.			
December.....	55	63	81	48	20	64	45	4.5	10	2.8	5.2	0.2	84	3.55	74	3.84	148	47	N.
January.....	54	61	82	47	15	65	46	4.6	11	2.4	8.4	0.2	84	3.42	74	3.59	148	40	SE.
February.....	57	64	82	50	7	66	50	4.7	10	2.9	13.8	0.3	85	3.72	74	3.97	136	44	SE.
Winter mean.....	55	63	81	48	14	64	47	4.6	31	8.1	27.4	0.5	84	3.56	74	3.80	144	40	SE.
March.....	63	70	84	55	30	69	59	5.2	9	2.7	10.8	0.0	84	4.36	70	4.59	186	50	SE.
April.....	69	76	88	61	33	72	65	5.1	8	1.6	8.0	0.0	82	5.21	67	5.35	208	54	SE.
May.....	75	83	93	68	52	79	73	4.0	9	0.1	2.5	0.0	80	6.59	67	6.47	274	65	SE.
Spring mean.....	69	76	88	61	39	73	66	4.8	26	4.4	21.3	0.0	82	5.39	68	5.47	223	56	SE.
June.....	81	87	98	74	58	84	77	6.2	14	7.8	4.9	0.0	81	8.07	72	7.87	231	55	SE.
July.....	83	89	102	76	67	84	79	6.3	16	5.4	6.6	0.0	82	8.69	74	8.60	214	50	SE.
August.....	82	88	99	75	63	84	79	5.7	14	2.3	8.6	0.0	83	8.53	74	8.34	210	51	SW.
Summer mean.....	82	88	99	75	63	84	79	5.9	44	15.5	20.1	0.0	82	8.43	73	8.27	218	52	SE.
September.....	79	85	96	72	55	82	76	4.7	11	0.4	7.9	0.0	82	7.43	72	7.40	234	64	NE.
October.....	70	78	91	63	40	75	66	3.0	7	0.9	2.1	0.0	80	5.43	68	5.60	226	64	NE.
November.....	61	69	85	54	29	66	56	3.8	9	1.7	6.8	0.0	84	4.21	74	4.54	163	51	N.
Fall mean.....	70	77	89	63	40	74	66	3.8	27	3.0	16.8	0.0	82	5.69	71	5.85	208	60	NE.
Annual mean.....	69	76	102	62	7	77	67	57.6	128	31.0	85.6	0.5	83	5.77	72	5.85	198	53	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD DECEMBER 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Dec. 20.....	June 29 30; July 1.	1900	None.....	Sept. 16, 17.
1895	Feb. 7, 8.....	None.	1901	do.....	June 16, 17, 19; July 11-14, 15; Aug. 2, 3
1896	None.....	June 29; July 31; Aug. 5, 18, 21.	1902	do.....	June 9, 14; July 11, 13; Aug. 16-18, 21-24,
1897	do.....	June 20-22, 26; July 31; Aug. 1-3.			27.
1898	do.....	July 22.	1903	do.....	July 23.
1899	Feb. 12-14.....	Aug. 1, 2; Sept. 4.			

LOUISIANA.

Coast Marsh: PLAQUEMINES PARISH. Station: PORT EADS.

FANNIE L. LAWES, Observer.

[Established by the U. S. Signal Service in 1887. Latitude, 29° N. Longitude, 89° 9' W. Elevation, 3 feet.]

This station is located in the Mississippi Delta, at the head of the jetties. The country is open and level, and, excepting a small area, is either water or marsh land which overflows with the daily tides. Much of the country above the station is arable, alluvial land.

The maximum and minimum thermometers at this station are standard instruments, and are exposed in a regulation voluntary station shelter. The top of the rain gage is 5 feet above the ground.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. Record somewhat broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 58	° F. 66	° F. 80	° F. 52	° F. 28	° F. 62	° F. 55	In. 3.9	8	In. 0.2	In. 7.3	In. 0.0	In. 0.0	
January.....	56	64	79	48	25	66	47	4.0	9	6.2	0.8	0.0	0.0	
February.....	57	64	80	50	10	66	49	4.3	9	3.4	5.6	0.3	2.0	
Winter mean.....	57	65		50				12.2	26	9.8	13.7	0.3		
March.....	62	69	79	54	35	66	58	3.8	8	5.7	2.8	0.0	0.0	
April.....	68	74	84	61	45	72	63	3.7	5	1.2	1.1	0.0	0.0	
May.....	75	81	95	69	51	78	73	2.8	5	2.4	0.6	0.0	0.0	
Spring mean.....	68	75		61				10.3	18	9.3	4.5	0.0		
June.....	80	86	99	75	61	83	78	4.0	8	6.4	1.1	0.0	0.0	
July.....	83	88	96	77	68	86	80	7.2	11	8.6	7.4	0.0	0.0	
August.....	82	88	97	76	68	85	80	7.8	13	4.7	13.4	0.0	0.0	
Summer mean.....	82	87		76				19.0	32	19.7	21.9	0.0		
September.....	80	85	95	75	59	83	78	6.3	11	2.1	18.4	0.0	0.0	
October.....	73	78	91	68	48	77	70	4.5	8	0.0	14.4	0.0	0.0	
November.....	66	72	84	59	36	70	62	2.9	6	2.0	4.6	0.0	0.0	
Fall mean.....	73	78		67				13.7	25	4.1	37.4	0.0		
Annual mean.....	70	76	99	64	10			55.2	101	42.9	77.5	0.3	2.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	None.....	None.	1899	Feb. 12-14.....	None.
1895	Feb. 8.....	Do.	1900	None.....	June 18; Sept. 17.
1896	None.....	Do.	1901	.....do.....	June 17; July 13; Aug. 10.
1897	.....do.....	Do.	1902	.....do.....	July 7; Aug. 17-19, 22, 24.
1898	.....do.....	Do.	1903	.....do.....	None.

TEXAS.

By **LESTER H. MURDOCH,**
Section Director.

TEXAS.

Area and topography.—Texas has an area of 265,780 square miles. It constitutes nearly one-eleventh of the United States proper, and is six times as large as the State of New York. Its extreme northern and southern limits reach to 36° 30' and 25° 50' north latitude, respectively, while from east to west its area extends from 93° 30' to 106° 40' west longitude. When to this great area is added a varied elevation, extending from sea level in the eastern portion to 4,000 feet and above in the western portion, together with a long coast line, some idea may be had of the great variety of climate which the State affords.

Temperature.—The mean annual temperature is about 55° in the northern portion of the Panhandle, but increases quite regularly to the southward until it reaches 70° along the coast and 73° over the lower Rio Grande Valley.

Over the greater portion of the State the annual mean maximum temperature ranges between 75° and 78°, but is as low as 67° over the Panhandle and as high as 84° over the lower Rio Grande Valley.

The annual mean minimum temperature increases quite regularly from 44° over the Panhandle to 65° along the east coast.

The greater portion of the Texas coast has never experienced a temperature above 98°, but temperatures of 100° and higher occasionally occur over all of the inland portion between June and September, inclusive. The region which experiences the highest maximum temperatures embraces the northwestern one-fourth of the State, excluding the Panhandle, and the extreme northeastern portion. Within this area temperatures of 110° have been recorded.

The absolute minimum temperature for the Panhandle is 16° below zero, but this decreases quite regularly until 8° above is found to be the lowest temperature ever recorded along the east coast and 12° above the lowest over the lower Rio Grande Valley.

Over the greater portion of the Rio Grande Valley the average number of days in a year with maximum temperatures above 90° ranges from 100 to 113. Over a rather narrow belt extending from the lower Rio Grande Valley northeastward across Bexar and McLennan counties to the northeastern corner of the State the average number of days with maximum temperatures above 90° is between 90 and 116. In the northwestern one-fourth of the State the average number is between 70 and 80, dropping to 36 over the Panhandle. In the southeastern inland portion the average number is between 66 and 90, and at Galveston and Corpus Christi 22 and 8, respectively.

The average number of days with minimum temperatures below freezing decreases quite regularly from 111 over the Panhandle to 7 over the lower Rio Grande Valley and 3 along the east coast.

Killing frost.—The first killing frost in autumn usually occurs in the extreme northwestern portion of the State about November 1. By November 15 it has occurred over the northwestern two-thirds of the State. By December 1 it has reached the coast counties in the eastern portion, and to within 200 miles of the mouth of the Rio Grande in the western portion. By December 25 killing frost has usually occurred down to the coast line, but winters occasionally pass without the occurrence of killing frost in the coast region. Killing frost has been known to occur over the northwestern half of the State between October 15 and 31, over the northeastern portion during the third decade of October, over the central and southeastern portions during the first days of November, and down to the east coast line by the 1st of December.

The average date of the last killing frost in spring occurs during February in the coast and southwestern counties, during the first half of April in the extreme northwestern portion, and during the month of March in the intermediate region. Killing frost has occurred along the coast as late as the first two decades of March, midway up the State about April 1, and over the Panhandle on May 23.

Precipitation.—The average annual rainfall increases quite regularly from slightly below 10 inches in the extreme western portion to about 50 inches in the extreme eastern counties.

During extremely wet years the precipitation may exceed the average by 10 or 12 inches over the western half, by about 15 inches over the eastern portion, by about 20 inches along the coast, and by 20 to 33 inches over the lower Rio Grande Valley.

The departures for the extremely dry years are slightly less than for the wet ones.

The spring is the wettest season for the middle and eastern portions, the summer for the southwestern, western, and Panhandle portions, and the fall for the immediate coast country. Over the greater portion of the State May and September are the two wettest months, although in quite a number of the extreme eastern counties January replaces September in this regard, and over about the western one-fifth of the State July stands out prominently as the wettest month of the year.

Spring is the driest season along the immediate coast and in the extreme western portion, summer for the extreme eastern counties, and winter for the great middle portion of the State. April is the driest month for the immediate coast region, March and April for the extreme western and northwestern portions, and August for the eastern counties.

The average annual snowfall does not exceed 5 inches, except in the extreme northwestern portion, where it is as much as 19 inches. Along the coast it is 0.7 inch, but many years pass without the occurrence of snow in the coast region and the lower Rio Grande Valley.

Thunderstorms.—The average number of days with thunderstorms increases from 20 in El Paso County to 40 in the Panhandle, and about the same number along the east coast.

Relative humidity.—West of the Pecos River the average annual relative humidity is about 40 per cent. Over the northwestern portion of the State it is about 60 per cent, and from 60 per cent it increases to about 75 per cent over the eastern counties and to 80 per cent or slightly above along the coast.

Fog.—The average number of days during a year on which fog occurs is about fifteen in the eastern portion, but decreases to none in the extreme western portion.

Sunshine.—The average annual percentage of the possible amount of sunshine decreases from 60 per cent along the east coast to 41 per cent along the west coast, and increases from about 50 per cent in the extreme eastern counties to 70 per cent in El Paso County and 60 per cent in the northwestern portion.

Winds.—The winds blow quite regularly from the south or southeast during the spring and summer months. There are a few changes to northerly points of the compass during the fall months and a sufficient number during the winter ones to make the prevailing direction for the latter season quite varied over the State.

The average velocity is from 10 to 12 miles per hour along the coast, decreasing to 7 or 8 miles over the middle and eastern portions and increasing to 11 miles in the extreme west and to 16 miles per hour over the Panhandle.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS IN TEXAS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Anderson.....	Palestine.....	Central.....	430	Duval (see Fort Clark).....		Southwestern.....	
Andrews (see Taylor).....		Western.....		Eastland (see Abilene).....		Western.....	
Angelina (see Longview).....		Eastern.....		Ector (see Abilene).....		do.....	
Arañas (see Corpus Christi).....		Coast.....		Edwards (see Fredericksburg).....		do.....	
Archer (see Mount Blanco).....		Northwestern.....		Ellis (see Dallas).....		Central.....	
Armstrong (see Palestine).....		do.....		El Paso.....	El Paso.....	Western.....	428
Atascosa (see San Antonio).....		Southwestern.....		Erath (see Abilene).....		Central.....	
Austin (see Fredericksburg).....		do.....		Falls (see Waco).....		do.....	
Bailey (see Mount Blanco).....		Northwestern.....		Fannin (see Paris).....		Northeastern.....	
Bandera (see Fredericksburg).....		Southwestern.....		Fayette (see College Station).....		Southwestern.....	
Bastrop (see College Station).....		do.....		Fisher (see Abilene).....		Northwestern.....	
Baylor (see Mount Blanco).....		Northwestern.....		Floyd (see Mount Blanco).....		do.....	
Bell (see Waco).....	Beeville.....	Coast.....	438	Foard (see Mount Blanco).....		do.....	
Bexar.....	San Antonio.....	Central.....		Fort Bend (see Houston).....		Coast.....	
Blanco (see Fredericksburg).....		Southwestern.....	436	Franklin (see Paris).....		Northeastern.....	
Borden (see Taylor).....		do.....		Freestone (see Palestine).....		Central.....	
Bosque (see Waco).....		do.....		Frio (see San Antonio).....		Southwestern.....	
Bowie (see Paris).....		do.....		Gaines (see Abilene).....		Northwestern.....	
Brazoria (see Galveston).....		do.....		Galveston.....	Galveston.....	Coast.....	437
Brazos.....		do.....		Garza (see Mount Blanco).....		Northwestern.....	
Brewster (see El Paso).....		do.....		Gillespie.....	Fredericksburg.....	Southwestern.....	433
Briscoe (see Amarillo).....		do.....		Glasscock (see Abilene).....		Western.....	
Brown (see Abilene).....		do.....		Goliad (see Beeville).....		Coast.....	
Burleson (see College Station).....		do.....		Gonzales (see San Antonio).....		Southwestern.....	
Burnet (see Menardville).....		do.....		Gray (see Amarillo).....		Northwestern.....	
Caldwell (see San Antonio).....		do.....		Grayson (see Dallas).....		Northeastern.....	
Calhoun (see Corpus Christi).....		do.....		Gregg.....	Longview.....	Eastern.....	427
Callahan (see Abilene).....		do.....		Grimes (see College Station).....		Central.....	
Cameron (see Paris).....		do.....		Guadalupe (see San Antonio).....		Southwestern.....	
Carson (see Amarillo).....		do.....		Hale (see Mount Blanco).....		Northwestern.....	
Cass (see Paris).....		do.....		Hall (see Amarillo).....		do.....	
Castro (see Amarillo).....		do.....		Hamilton (see Waco).....		Central.....	
Chambers (see Galveston).....		do.....		Hansford (see Amarillo).....		Northwestern.....	
Cherokee (see Palestine).....		do.....		Hardeman (see Mount Blanco).....		do.....	
Childress (see Amarillo).....		do.....		Hardin (see Houston).....		Coast.....	
Clay (see Mount Blanco).....		do.....		Harris.....	Houston.....	do.....	434
Cochran (see Mount Blanco).....		do.....		Harrison (see Longview).....		Eastern.....	
Coke (see Abilene).....		do.....		Hartley (see Amarillo).....		Northwestern.....	
Coleman (see Abilene).....		do.....		Haskell (see Mount Blanco).....		do.....	
Collin (see Dallas).....		do.....		Hays (see Fredericksburg).....		Southwestern.....	
Collingsworth (see Amarillo).....		do.....		Hemphill (see Amarillo).....		Northwestern.....	
Colorado (see Houston).....		do.....		Henderson (see Dallas).....		Central.....	
Comal (see San Antonio).....		do.....		Hidalgo (see Fort Brown).....		Coast.....	
Comanche (see Abilene).....		do.....		Hill (see Waco).....		Central.....	
Concho (see Menardville).....		do.....		Hockley (see Mount Blanco).....		Northwestern.....	
Cooke (see Dallas).....		do.....		Hood (see Dallas).....		Central.....	
Coryell (see Waco).....		do.....		Hopkins (see Paris).....		Northeastern.....	
Cottle (see Mount Blanco).....		do.....		Houston (see Palestine).....		Central.....	
Crane (see Menardville).....		do.....		Howard (see Abilene).....		Western.....	
Crockett (see Menardville).....		do.....		Hunt (see Dallas).....		Northeastern.....	
Crosby.....		do.....		Hutchinson (see Amarillo).....		Northwestern.....	
Dallam (see Amarillo).....		do.....		Irion (see Menardville).....		Western.....	
Dallas.....	Mount Blanco.....	do.....	423	Jack (see Mount Blanco).....		Northeastern.....	
Dawson (see Abilene).....		do.....		Jackson (see Beeville).....		Coast.....	
Deaf Smith (see Amarillo).....		do.....		Jasper (see Houston).....		Eastern.....	
Delta (see Paris).....		do.....		Jeff Davis (see El Paso).....		Western.....	
Denton (see Dallas).....		do.....		Jefferson (see Galveston).....		Coast.....	
Dewitt (see Beeville).....		do.....		Johnson (see Dallas).....		Central.....	
Dickens (see Mount Blanco).....		do.....		Jones (see Abilene).....		Northwestern.....	
Dimmit (see Fort Clark).....		do.....		Karnes (see Beeville).....		Southwestern.....	
Donley (see Amarillo).....		do.....		Kaufman (see Dallas).....		Northeastern.....	
		do.....		Kendall (see Fredericksburg).....		Southwestern.....	
		do.....		Kent (see Mount Blanco).....		Northwestern.....	
		do.....		Kerr (see Fredericksburg).....		Southwestern.....	

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS IN TEXAS—Continued.

County	Station	District	Page	County	Station	District	Page
Kimble (<i>see</i> Fredericksburg)		Western		Robertson (<i>see</i> College Station)		Central	
King (<i>see</i> Mount Blanco)		Northwestern		Rockwall (<i>see</i> Dallas)		Northeastern	
Kinney	Fort Clark	Southwestern	435	Runnels (<i>see</i> Abilene)		Western	
Knox (<i>see</i> Mount Blanco)		Northwestern		Rusk (<i>see</i> Longview)		Eastern	
Lamar	Paris	Northeastern	424	Sabine (<i>see</i> Longview)		do	
Lamb (<i>see</i> Mount Blanco)		Northwestern		San Augustine (<i>see</i> Longview)		do	
Lampasas (<i>see</i> Menardville)		Central		San Jacinto (<i>see</i> Houston)		do	
Lasalle (<i>see</i> Fort Clark)		Southwestern		San Patricio (<i>see</i> Corpus Christi)		Coast	
Lavaca (<i>see</i> Beeville)		do		San Saba (<i>see</i> Menardville)		Western	
Lee (<i>see</i> College Station)		do		Schleicher (<i>see</i> Menardville)		do	
Leon (<i>see</i> Palestine)		Central		Scurry (<i>see</i> Abilene)		do	
Liberty (<i>see</i> Houston)		Coast		Shackelford (<i>see</i> Abilene)		Northwestern	
Limestone (<i>see</i> Waco)		Central		Shelby (<i>see</i> Longview)		Eastern	
Lipscomb (<i>see</i> Amarillo)		Northwestern		Sherman (<i>see</i> Amarillo)		Northwestern	
Live Oak (<i>see</i> Beeville)		Southwestern		Smith (<i>see</i> Longview)		Eastern	
Llano (<i>see</i> Menardville)		Western		Somervell (<i>see</i> Dallas)		Central	
Loving (<i>see</i> Abilene)		do		Starr (<i>see</i> Fort Brown)		Southwestern	
Lubbock (<i>see</i> Mount Blanco)		Northwestern		Stephens (<i>see</i> Abilene)		Western	
Lynn (<i>see</i> Mount Blanco)		do		Sterling (<i>see</i> Abilene)		Western	
McCulloch (<i>see</i> Menardville)		Western		Stonewall (<i>see</i> Mount Blanco)		Northwestern	
McLennan	Waco	Central	429	Sutton (<i>see</i> Menardville)		Western	
McMullen (<i>see</i> Beeville)		Southwestern		Swisher (<i>see</i> Amarillo)		Northwestern	
Madison (<i>see</i> College Station)		Central		Tarrant (<i>see</i> Dallas)		Northeastern	
Marion (<i>see</i> Longview)		Eastern		Taylor	Abilene	Western	425
Martin (<i>see</i> Abilene)		Western		Terry (<i>see</i> Mount Blanco)		Northwestern	
Mason (<i>see</i> Menardville)		do		Throckmorton (<i>see</i> Mount Blanco)		do	
Matagorda (<i>see</i> Corpus Christi)		Coast		Titus (<i>see</i> Paris)		Northeastern	
Maverick (<i>see</i> Fort Clark)		Southwestern		Tom Green (<i>see</i> Menardville)		Western	
Medina (<i>see</i> San Antonio)		do		Travis (<i>see</i> Fredericksburg)		Southwestern	
Menard	Menardville	Western	431	Trinity (<i>see</i> Palestine)		Eastern	
Midland (<i>see</i> Abilene)		do		Tyler (<i>see</i> Houston)		do	
Mills (<i>see</i> Menardville)		Central		Upshur (<i>see</i> Longview)		Northwestern	
Mitchell (<i>see</i> Abilene)		Western		Upton (<i>see</i> Menardville)		Western	
Montague (<i>see</i> Dallas)		do		Uvalde (<i>see</i> Fort Clark)		Southwestern	
Montgomery (<i>see</i> Houston)		Northeastern		Valverde (<i>see</i> Fort Clark)		Western	
Moore (<i>see</i> Amarillo)		Central		Van Zandt (<i>see</i> Dallas)		Northeastern	
Morris (<i>see</i> Paris)		Northwestern		Victoria (<i>see</i> Beeville)		Coast	
Motley (<i>see</i> Mount Blanco)		Northwestern		Walker (<i>see</i> College Station)		Central	
Nacogdoches (<i>see</i> Longview)		Eastern		Waller (<i>see</i> Houston)		do	
Navarro (<i>see</i> Dallas)		Central		Ward (<i>see</i> Abilene)		Western	
Newton (<i>see</i> Houston)		Eastern		Washington (<i>see</i> College Station)		Central	
Nolan (<i>see</i> Abilene)		Western		Webb (<i>see</i> Fort Clark)		Southwestern	
Nueces	Corpus Christi	Coast	439	Wharton (<i>see</i> Houston)		Coast	
Ochiltree (<i>see</i> Amarillo)		Northwestern		Wheeler (<i>see</i> Amarillo)		Northwestern	
Oldham (<i>see</i> Amarillo)		do		Wichita (<i>see</i> Mount Blanco)		do	
Orange (<i>see</i> Houston)		Coast		Wilbarger (<i>see</i> Mount Blanco)		do	
Palo Pinto (<i>see</i> Abilene)		Northwestern		Williamson (<i>see</i> Waco)		Central	
Panola (<i>see</i> Longview)		Eastern		Wilson (<i>see</i> San Antonio)		Southwestern	
Parker (<i>see</i> Dallas)		Northeastern		Winkler (<i>see</i> Abilene)		Western	
Parmer (<i>see</i> Amarillo)		Northwestern		Wise (<i>see</i> Dallas)		do	
Pecos (<i>see</i> El Paso)		Western		Wood (<i>see</i> Longview)		do	
Potter	Amarillo	Western	422	Yakum (<i>see</i> Mount Blanco)		Northwestern	
Priddy (<i>see</i> El Paso)		Northwestern		Young (<i>see</i> Mount Blanco)		do	
Rains (<i>see</i> Dallas)		Northwestern		Zapata (<i>see</i> Fort Brown)		Southwestern	
Randall (<i>see</i> Amarillo)		Northwestern		Zavalla (<i>see</i> Fort Clark)		do	
Red River (<i>see</i> Paris)		Northeastern					
Reeves (<i>see</i> El Paso)		Western					
Refugio (<i>see</i> Corpus Christi)		Coast					
Roberts (<i>see</i> Amarillo)		Northwestern					

STATE SUMMARY—TEXAS.

Temperature.

Station.	Number.	Mean an- nual.	Mean maxi- mum.	Mean mini- mum.	Abso- lute maxi- mum.	Date.	Abso- lute mini- mum.	Date.	Average num- ber days with—	
									Maxi- mum above 59°	Mini- mum below 32°
Amarillo.....	1	56	68	44	105	June, 1902....	-16	February, 1899..	36	111
Mount Blanco....	2	60	72	46	110	do.....	-14	do.....	71	83
Paris.....	3	64	77	51	110	August, 1899....	-13	do.....	89	60
Abilene.....	4	64	74	53	110	July, 1899.....	-6	do.....	74	40
Dallas.....	5	65	76	52	108	July, 1904.....	-10	do.....	91	51
Longview.....	6	68	77	54	108	July, 1907.....	-7	do.....	100	35
El Paso.....	7	63	77	50	113	June, 1893.....	-5	December, 1899..	93	46
Waco.....	8	67	78	56	106	July, 1899.....	-5	February, 1899..	116	29
Palestine.....	9	66	75	56	106	August, 1899....	-6	do.....	66	23
Memphisville.....	10	64	77	50	108	June, 1899.....	-3	February, 1899..	79	43
College Station....	11	67	78	57	110	July, 1903.....	-5	do.....	81	19
Fredericksburg....	12	65	76	54	104	June, 1902.....	-1	February, 1899..	58	27
Houston.....	13	69	78	58	104	July, 1904.....	-6	do.....	80	11
Fort Clark.....	14	66	80	58	109	June, 1899.....	-10	February, 1899..	113	17
San Antonio.....	15	69	79	58	106	July, 1904.....	-8	February, 1899..	94	12
Galveston.....	16	70	75	62	96	August, 1874....	-8	do.....	22	3
Beeville.....	17	70	83	58	106	July, 1898.....	-5	do.....	13	14
Corpus Christi....	18	70	76	64	98	July, 1904.....	-11	do.....	8	4
Fort Brown.....	19	73	84	61	102	do.....	-12	do.....	107	7

Frost.

Precipitation.

Station.	Number.	Average date of		Date of		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Amarillo.....	1	Nov. 7	Apr. 12	Oct. 16	May 23	Inches. 21.9	Inches. 5.7	Inches. 8.8	Inches. 4.9	Inches. 2.5
Mount Blanco....	2	Oct. 30	Apr. 10	Oct. 18	Apr. 30	15.6	3.7	6.5	3.5	1.9
Paris.....	3	Nov. 15	Mar. 28	Nov. 3	Apr. 12	33.3	10.9	8.4	7.8	6.2
Abilene.....	4	do.....	Mar. 15	Oct. 25	Apr. 7	24.5	7.4	7.0	6.7	3.4
Dallas.....	5	do.....	Mar. 26	Nov. 2	May 1	36.8	11.0	10.6	8.4	6.8
Longview.....	6	Nov. 16	Mar. 19	Oct. 26	Mar. 31	47.2	13.3	10.4	10.7	12.8
El Paso.....	7	Nov. 10	Mar. 20	Oct. 30	Apr. 22	9.3	0.9	4.4	2.6	1.4
Waco.....	8	do.....	Mar. 16	Nov. 3	Apr. 5	35.4	12.7	7.5	8.0	7.2
Palestine.....	9	Nov. 13	Mar. 13	Oct. 20	Mar. 30	44.5	12.9	9.4	10.8	11.4
Memphisville.....	10	Nov. 12	Mar. 31	Oct. 24	May 1	22.6	8.8	8.8	6.6	3.3
College Station....	11	Nov. 20	Mar. 5	Nov. 2	Mar. 24	37.8	10.4	7.9	9.2	10.3
Fredericksburg....	12	Nov. 15	Mar. 17	Oct. 21	Mar. 28	28.4	8.3	7.3	8.0	4.8
Houston.....	13	Nov. 27	Feb. 21	Nov. 4	Mar. 26	48.2	12.2	13.5	11.5	11.0
Fort Clark.....	14	Nov. 18	Feb. 22	Nov. 2	Mar. 19	23.4	6.1	7.4	6.6	3.3
San Antonio.....	15	Nov. 30	Feb. 25	Nov. 9	do.....	26.7	7.1	8.0	6.2	5.4
Galveston.....	16	Dec. 25	Feb. 5	Dec. 4	Mar. 1	47.6	9.3	13.7	14.0	10.6
Beeville.....	17	Dec. 7	Feb. 18	Oct. 27	Mar. 6	28.9	7.0	8.1	7.3	5.3
Corpus Christi....	18	Dec. 25	Feb. 27	Nov. 30	Mar. 19	28.8	6.0	6.8	8.2	5.8
Fort Brown.....	19	Dec. 13	Feb. 18	Nov. 15	Mar. 5	28.2	4.3	7.7	11.8	4.4

TEXAS.

Panhandle: POTTER COUNTY. Station: AMARILLO

P. Wood, Observer.

[Established January 1, 1892. Latitude, 35° 13' N. Longitude, 101° 50' W. Elevation, 3,658 feet.]

The office was located from its establishment to May 1, 1902, on the northwest corner of Polk and Fifth streets, from May 1, 1902, to June 1, 1903, on the southwest corner of the same streets. On June 1, 1903, the office was removed to the new Weather Bureau building, southeast corner of Taylor and Seventh streets, where it is located at the present time.

The surrounding country is level rolling prairie, with breaks occasionally.

The thermometers are exposed above sod in a standard instrument shelter 32 feet southeast of the office building and 10 feet above ground. The rain gage is exposed in the open 53 feet due south of the office building, its top being 2.8 feet above the ground. The anemometer is on the roof of the office building, the cups being 49.3 feet above ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max. ma.	Absolute maxi- mum.	Mean of the min- ma.	Absolute min- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 37	° F. 48	° F. 75	° F. 26	° F. - 1	° F. 43	° F. 28	In. 0.9	5	In. 1.1	In. 1.1	In. 4.6	In. 5.4	P. ct. 73	Gr. s. 1.41	P. ct. 57	Gr. s. 1.68	N. S.
January.....	36	47	74	25	- 4	40	28	0.6	4	0.4	0.3	4.4	12.0	72	1.22	51	1.35	N. S.
February.....	35	46	75	23	- 16	42	25	1.0	6	0.6	0.1	7.0	10.0	79	1.34	50	1.42	N. S.
Winter mean.....	36	47	.....	25	.....	.....	.....	2.5	15	2.1	1.5	16.0	.....	75	1.32	53	1.48	N. S.
March.....	45	59	85	32	- 2	47	42	0.4	4	2.1	0.2	1.0	4.2	65	1.54	34	1.54	S. S.
April.....	56	69	90	43	22	60	52	1.7	7	0.2	0.2	1.0	5.0	66	2.25	33	2.17	S. S.
May.....	64	76	98	52	30	69	62	3.6	9	2.7	3.1	0.0	0.0	74	3.59	41	4.09	S. S.
Spring mean.....	55	68	.....	42	.....	.....	.....	5.7	20	5.0	3.5	2.0	.....	68	2.46	36	2.60	S. S.
June.....	72	84	105	60	42	76	66	3.0	10	1.5	4.4	0.0	0.0	76	4.82	43	4.56	S. S.
July.....	76	86	98	65	52	78	72	3.2	10	1.8	7.0	0.0	0.0	77	5.58	44	5.12	S. S.
August.....	75	86	97	64	52	79	71	2.6	9	1.9	0.5	0.0	0.0	78	5.29	44	4.96	S. S.
Summer mean.....	74	85	.....	63	.....	.....	.....	8.8	29	5.2	11.9	0.0	.....	77	5.23	44	4.88	S. S.
September.....	68	82	95	58	37	72	66	2.3	6	0.2	6.1	0.0	0.0	77	4.28	44	5.99	S. S.
October.....	58	69	89	46	26	60	53	1.8	6	2.8	1.2	0.0	0.0	75	2.75	47	2.79	S. S.
November.....	46	59	82	35	8	48	42	0.8	4	0.2	3.2	0.7	2.4	72	1.84	49	2.00	S. S.
Fall mean.....	57	70	.....	46	.....	.....	.....	4.9	16	3.2	10.5	0.7	.....	75	2.96	47	3.59	S. S.
Annual mean.....	56	68	105	44	- 16	.....	.....	21.9	80	15.5	27.4	18.7	12.0	74	2.99	45	3.14	S. S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 6, 23-25; Feb. 11-15, 21, 22, 24, 25; Dec. 26-28.	None.	1899	Jan. 28-31; Feb. 1-13, 23; Mar. 28.	None.
1895	Jan. 8, 25-30; Feb. 1, 2, 6-17; Mar. 14, Dec. 26.	Do.	1900	Feb. 8, 15-17; Dec. 30, 31.	Do.
1896	Jan. 3; Nov. 27-29....	Do.	1901	Jan. 1, 2; Feb. 9, 22, 23.	Do.
1897	Jan. 5, 24-27; Dec. 2-4, 16, 17.	June 24.	1902	Jan. 25-27, 29, Feb. 1, 2, 4.	June 23, 24, 26.
1898	Jan. 16, 25; Dec. 8-10, 14, 15, 24, 31.	None.	1903	Feb. 15-19, 27, 28; Mar. 1, 2.	None.

TEXAS.

Northwestern Division: CROSBY COUNTY. Station: MOUNT BLANCO.

H. C. SMITH, Observer.

[Established by the U. S. Weather Bureau in January, 1892. Latitude, 33° 48' N. Longitude, 101° 10' W. Elevation, 2,750 feet.]

Mount Blanco is a village located in a valley from 1 to 3 miles wide. This valley is surrounded by bluffs from 175 to 200 feet high. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter located 5 feet above sod, in an open space 100 feet from the residence of the observer. The rain gage is located about 15 feet from the shelter; its top is 3 feet above the ground.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, to DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	42	51	77	27	- 2	47	35	0.6	2	1.7	0.1
January.....	39	50	78	26	-10	47	32	0.5	3	0.1	0.1
February.....	41	50	84	25	-14	48	30	0.8	1	0.1	T.
Winter mean.....	41	50		26				1.9	6	1.9	0.2
March.....	50	65	93	35	11	56	47	0.3	1	T.	0.2
April.....	61	72	98	45	17	66	56	1.6	3	0.1	4.1
May.....	69	80	103	56	33	76	66	1.8	3	1.1	1.2
Spring mean.....	60	72		45				3.7	7	1.2	5.5
June.....	76	89	110	63	43	81	68	2.2	5	0.2	3.1
July.....	79	91	104	66	48	84	72	2.5	4	2.2	7.6
August.....	77	91	104	65	50	82	74	1.8	5	2.1	2.7
Summer mean.....	77	90		65				6.5	14	4.5	13.4
September.....	72	84	102	58	33	76	69	1.6	3	0.1	4.7
October.....	62	74	95	48	23	73	56	1.2	3	T.	3.0
November.....	50	62	85	37	11	52	44	0.7	2	T.	1.2
Fall mean.....	61	73		48				3.5	8	0.1	8.9
Annual mean.....	60	72	110	46	-14			15.6	35	7.7	28.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, to DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24, 25; Feb. 12, 14; Dec. 28.	May, missing; June 25-27; July 2-4.	1898	Dec. 9, 10, 14.....	May 28; June 25.
1895	Jan. 8, 28-30; Feb. 2, 6-9, 11, 12, 14-17; Dec. 31.	Aug., missing.	1899	Jan. 1, 27, 28, 31; Feb. 4-7, 9-12.	May to Aug., missing.
1896	Jan. 4.....	May 22, 24, 26, 27, 30; June, incomplete; Aug. 16.	1900	Feb. 16, 17; Dec. 31...	June 27; Aug., missing.
1897	Jan. 25-27; Dec., missing.	June, missing; July 14.	1901	Jan. 1; Feb. 12, 13; Dec. 14-16.	June 19, 20; July 5, 6; Aug. 26-29.
			1902	Jan. 26, 27; Feb. 2....	June 14, 18, 23-26; Sept. 8, 10.
			1903	Feb. 16, 17; Dec. 13...	July 3, 16, 17, 21, 22, 24, 25.

TEXAS.

Northeastern Division: LAMAR COUNTY. Station: PARIS.

C. E. THORNE, Observer.

[Established by the Signal Service in April, 1882. Latitude, 33° 38' N. Longitude, 95° 32' W. Elevation, 592 feet.]

Paris is located in a level prairie country. The maximum and minimum thermometers are exposed in a standard cotton region shelter, which is located in a grassy plot about 20 feet from any building and 10 feet above ground. The rain gage is exposed on the top of a building 35 feet high and 50 feet from any other building. The top of the gage is 2½ feet above the roof.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1882, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	46	57	80	32	5	52	41	2.1	4	1.9	3.4	0.5	3.0
January.....	45	57	83	33	8	50	41	2.1	5	3.1	0.4	1.8	4.0
February.....	44	57	84	31	-13	50	34	2.0	4	0.3	2.2	1.4	4.0
Winter mean.....	45	57		32				6.2	13	5.3	6.0	3.7	
March.....	55	69	92	42	18	58	51	3.5	6	0.6	4.0	0.0	0.0
April.....	65	76	96	49	29	70	59	2.9	6	3.2	4.7	0.0	0.0
May.....	71	83	96	60	38	76	67	4.5	9	2.4	4.3	0.0	0.0
Spring mean.....	64	76		50				10.9	21	6.2	13.0	0.0	
June.....	78	91	104	67	46	81	74	3.3	5	1.2	2.0	0.0	0.0
July.....	83	96	108	70	60	86	79	3.1	9	1.5	4.6	0.0	0.0
August.....	82	97	110	71	57	89	78	2.0	4	T.	0.1	0.0	0.0
Summer mean.....	81	95		69				8.4	18	2.7	6.7	0.0	
September.....	76	90	106	61	42	80	72	2.8	6	0.6	6.7	0.0	0.0
October.....	66	81	95	54	33	71	60	2.3	5	3.0	3.8	0.0	0.0
November.....	54	68	85	42	18	59	49	2.7	4	0.6	11.9	0.0	0.0
Fall mean.....	65	80		52				7.8	15	4.2	22.4	0.0	
Annual mean.....	64	77	110	51	-13	89	34	33.3	67	18.4	48.1	3.7	4.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 28.....	June 30; July 1-4; Aug. 14.	1899	Jan. 1; Feb. 11-15....	July 18, 25, 31; Aug. 1-17, 21-31; Sept. 5-10.
1895	Feb. 2, 7, 8.....	None.	1900	Jan. 29; Feb. 17, 18...	June 28-30; Aug. 23, 24, 29, 31; Sept. missing.
1896	None.....	June 13, 20, 27, 29, 30; July 2-4, 22, 24, 26-31; Aug. 1-5, 7-11, 14-23; Sept. 4-12, 16-19.	1901	Dec. 15, 16, 21.....	June 18, 22-24; July 1, 4-7, 9-20, 23-25; Aug. 6.
1897	Jan. 25, 26.....	June 22, 23, 26; July 1, 2, 7-10, 12, 15, 23-28, 31; Aug. 1-7, 9, 25-27, 30, 31; Sept. 1, 2, 4-6.	1902	None.....	June 22, 27; July 18; Aug. 4, 15-19, 23-29, 31; Sept. 1, 2.
1898	Dec. 10.....	No record.	1903	Feb. 16, 17.....	July 6, 8, 9, 12, 20, 21; Aug. 7, 9.

TEXAS.

Central Plateau: TAYLOR COUNTY. Station: ABILENE.

GEO. W. EDDY, Observer.

[Established by the Signal Service in September, 1885. Latitude, 32° 23' N. Longitude, 99° 40' W. Elevation, 1,718 feet.]

First observation was taken September 15, 1885, in the Border Building, 497 yards north, 209 yards west, of the courthouse. August 1, 1886, the office was moved to the Porter & Reeves Building, corner North Second and Pine streets. January 1, 1894, the office was moved to its present location, known as the Ed. S. Hughes Building, South First street.

This station is located in the central portion of the city of Abilene. The country that surrounds Abilene is an open prairie with small timber and few streams of water. The thermometers and the thermograph are exposed in the standard shelter on the roof of the building. The height of the thermometers above the roof of the building is 12 feet; above ground 45 feet. The rain gage is 16 feet and the snow gage 17 feet south of the instrument shelter. The top of each gage is 3 feet above the roof. The building is two stories high with flat roof surface.

Data of relative humidity are from fifteen years: other data from the full period of observation, eighteen years, January 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 p. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	° F. 47	° F. 57	° F. 81	° F. 36	° F. 1	° F. 60	° F. 39	In. 1.3	4	In. 0.4	In. 2.7	In. 0.9	In. 5.9	P. ct. 76	Grs. 2.09	P. ct. 57	Grs. 2.32	S.	
January.....	44	54	83	33	- 5	50	37	0.9	5	T.	1.2	1.5	6.0	77	1.96	58	2.20	SW.	
February.....	46	57	85	35	- 6	52	33	1.2	5	1.4	2.3	1.3	8.0	78	1.99	55	2.24	SW.	
Winter mean.....	46	56	.....	35	.....	.....	.....	3.4	14	1.8	6.2	3.7	.....	77	2.01	57	2.25	SW.
March.....	55	67	93	44	17	60	50	1.3	5	0.7	0.2	0.4	3.5	73	2.58	45	2.67	SE.	
April.....	65	76	99	54	25	70	62	2.3	6	1.0	2.3	0.0	0.0	74	3.71	44	3.63	SE.	
May.....	72	83	105	62	36	79	68	3.8	7	7.2	2.0	0.0	0.0	80	5.25	50	4.98	SE.	
Spring mean.....	64	75	.....	53	.....	.....	.....	7.4	18	8.9	4.5	0.4	.....	76	3.85	46	3.76	SE.
June.....	79	89	106	68	48	83	72	3.0	7	7	2.4	0.0	0.0	77	6.14	46	5.86	SE.	
July.....	82	93	110	72	61	86	79	2.0	6	0.3	4.6	0.0	0.0	76	6.89	43	5.99	S.	
August.....	82	92	104	72	55	87	76	2.0	6	0.8	1.3	0.0	0.0	77	6.55	44	5.95	SE.	
Summer mean.....	81	91	.....	71	.....	.....	.....	7.0	19	1.1	14.3	0.0	.....	77	6.53	44	5.93	SE.
September.....	75	85	104	65	42	79	70	3.2	6	1.8	4.0	0.0	0.0	81	5.68	50	5.30	S.	
October.....	66	76	94	55	30	69	61	2.2	5	0.6	4.1	0.0	0.0	77	3.86	52	4.02	S.	
November.....	54	64	86	43	13	58	48	1.3	4	1.5	2.4	0.2	0.0	76	2.60	54	2.80	SW.	
Fall mean.....	65	75	.....	54	.....	.....	.....	6.7	15	3.9	10.5	0.2	.....	78	4.08	52	4.04	S.
Annual mean.....	64	74	110	53	- 6	.....	.....	24.5	66	15.7	35.5	4.3	8.0	77	4.12	50	4.00	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 28...	June 26, 27; July 2-4, 25.	1899	Jan. 31; Feb. 11-13...	July 21, 23; Aug. 9-11, 15-20, 22-24, 28.
1895	Jan. 28, 30; Feb. 2, 7, 8, 14-16.	Aug. 14.	1900	None.....	June 16, 17, 22, 26, 27; Aug. 24.
1896	None.....	June 7, 8, 17-20; Aug. 2, 7, 16, 22.	1901	Dec. 14.....	July 6; Aug. 17, 27-29.
1897	Jan. 25-27.....	June 22, 23; July 3, 14, 25, 26; Aug. 5.	1902	Jan. 27.....	June 14, 15, 18, 24, 25, 29; Aug. 29.
1898	Dec. 10.....	July 23, 24.	1903	None.....	June 24; July 25; Aug. 17.

TEXAS.

Northeastern Division: DALLAS COUNTY. Station: DALLAS.

G. A. EISENLOHR, Observer.

[Established by the Signal Service in April, 1882. Latitude, 32° 47' N. Longitude, 96° 48' W. Elevation, 466 feet.]

This station is located in the residence portion of Dallas, about 1 mile from the Trinity River. The contour of the country is rolling. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter, located in the middle of a lot 50 by 100 feet. The shelter is 4 feet above the sod and the door opens toward the north.

The rain gage is 10 feet from the shelter and 25 feet from a fence and house. The top of the gage is 3.5 feet above the ground.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1882, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	48	57	82	33	4	61	40	2.0	4	0.6	3.2	0.6	4.0	N.
January.....	45	56	80	33	2	50	41	2.7	5	T.	2.7	0.8	2.8	N.
February.....	46	56	85	32	-10	59	34	2.1	4	2.3	0.6	1.7	6.0	N.
Winter mean.....	46	56		33				6.8	13	2.9	6.5	3.1		N.
March.....	56	68	98	44	18	60	53	3.3	6	2.4	1.8	T.	T.	S.
April.....	66	76	94	50	31	71	61	3.5	5	1.8	2.4	0.0	0.0	S.
May.....	74	84	98	61	36	78	67	4.2	7	5.7	7.5	0.0	0.0	S.
Spring mean.....	66	76		52				11.0	18	9.9	11.7	T.		S.
June.....	81	92	105	68	48	84	73	4.3	5	0.6	8.0	0.0	0.0	S.
July.....	84	94	108	71	59	88	80	3.4	7	0.5	3.6	0.0	0.0	S.
August.....	83	96	107	71	52	87	79	2.9	4	2.8	1.5	0.0	0.0	S.
Summer mean.....	83	94		70				10.6	16	3.9	13.1	0.0		S.
September.....	77	90	104	63	43	83	72	3.0	5	3.6	3.7	0.0	0.0	S.
October.....	67	80	97	53	32	73	60	2.9	5	2.5	1.4	0.0	0.0	S.
November.....	55	67	88	43	18	60	50	2.5	4	2.4	3.8	0.0	0.0	S.
Fall mean.....	66	79		53				8.4	14	8.5	8.9	0.0		S.
Annual mean.....	65	76	108	52	-10			36.8	61	25.2	40.2	3.1	6.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 28....	July 1-5.	1900	None.....	June 23, 27-29.
1895	Jan. 30; Feb. 7, 8....	Aug. 11.	1901	Dec. 15, 16.....	June 17-19, 21; July 3-6, 8, 9, 11, 13-21, 27, 29-31; Aug. 3-5, 10-12, 18, 19, 25-30; Sept. 1, 2.
1896	None.....	June 21, 23, 24, 28, 29; July 1-5, 24, 25, 27, 28; Aug. 1-9, 15-23.	1902	None.....	June 9-12, 15-21, 25-27, July 10, 11, Aug. 18, 23-31; Sept. 1, 2, 12.
1897	Jan. 27, 28.....	June 22; July 2, 7-9, 11, 15, 16, 24-27, 29-31; Aug. 5-10; Sept. 5, 6.	1903	Do.....	Aug. 17, 18.
1898	Dec. 10, 11.....	July 23, 24.			
1899	Feb. 12, 14.....	July 23, 24; Aug. 1, 2, 4-16, 20-29; Sept. 5-7, 11.			

TEXAS.

Eastern Division: GREGG COUNTY. Station: LONGVIEW.

C. H. Worrall, Observer.

[Established by the Signal Service in October, 1888. Latitude, 32° 30' N. Longitude, 94° 45' W. Elevation, 336 feet.]

Longview is located in a hilly and timbered country. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter attached to the north side of the building occupied by the Western Union Telegraph Company. The shelter is 6 feet above the ground. The rain gage is located on the roof of a coal shed 250 feet from the shelter and 20 feet above the ground.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER, 1888, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	50	58	77	36	10	55	43	4.0	7	1.1	4.4
January.....	47	57	80	36	12	58	44	5.3	8	9.3	5.6
February.....	49	57	83	35	- 7	57	37	3.5	7	3.6	12.8
Winter mean.....	49	57		36				12.8	22	14.0	22.8
March.....	57	69	89	47	26	62	53	4.5	9	0.5	4.7
April.....	67	76	93	52	34	70	62	4.3	7	3.6	8.0
May.....	75	86	100	63	41	79	71	4.5	9	3.8	5.4
Spring mean.....	66	77		54				13.3	25	7.9	18.1
June.....	81	93	105	69	50	83	74	5.0	9	5.9	3.0
July.....	84	96	108	72	57	87	82	3.4	9	2.2	2.4
August.....	83	97	108	73	56	88	80	2.0	6	1.1	0.4
Summer mean.....	83	95		71				10.4	24	9.2	5.8
September.....	77	90	105	65	41	83	73	3.3	6	3.2	3.9
October.....	67	80	96	54	32	73	62	3.0	6	0.6	6.5
November.....	56	68	93	45	21	62	51	4.4	6	2.7	3.8
Fall mean.....	67	79		55				10.7	18	6.5	14.2
Annual mean.....	66	77	108	54	- 7			47.2	89	37.6	60.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24; Dec. 28.....	June 29, 30; July 1-5.	1899	Feb. 12, 13.....	July 7, 14-17, 21-24, 30, 31; Aug. 1-14, 16, 20-28, 30; Sept. 4-8.
1895	Feb. 7, 8.....	July 16, 18, 19; Aug. 10, 11, 18, 22, 25, 28; Sept. 12, 13.	1900	None.....	June 9-11, 18; July 3; Sept. 17.
1896	None.....	May 31; June 9, 15, 16, 20, 21, 26-29; July 3-5, 7, 15-31; Aug. 1-11, 13, 14, 16-19, 21-23, 27; Sept. 4-6, 8, 9, 11, 16-18.	1901	do.....	June 15-19, 21, 22, 24, 25, 28-30; July 3-6, 8, 9, 11-14, 16-20, 24, 30, 31; Aug. 3-5, 10-12, 18, 19, 25-27, 29.
1897	do.....	June 17-24, 26-28, 30; July 1-8, 10, 11, 15-17, 20-27, 29-31; Aug. 1-10; Sept. 5.	1902	do.....	June 11, 13, 15, 17, 19-21, 26; Aug. 15, 23, 24, 27, 28.
1898	None.....	June 23; July 21-24; Aug. 8, 19, 24.	1903	do.....	July 23.

TEXAS.

Western District: EL PASO COUNTY. Station: EL PASO.

N. D. LANE, Observer.

[Established by Signal Service in April, 1878. Latitude, 31° 47' N. Longitude, 106° 30' W. Elevation, 3,702 feet.]

The station is near the center of the city and about midway between Mount Franklin (north) and the Rio Grande (south). The instrument shelter is of standard pattern and is located in one of the city parks, this park occupying a full square of ground and fully grassed. The rain gage is placed 10 feet from the shelter and both are inclosed by an iron fence. The exposures are considered excellent.

The following records are believed to be largely erroneous, due to improper exposure of instrument, the readings often being much too high. Summer maximum temperatures for the year 1879 and for the years 1881 to 1886, inclusive.

Due to the rarity of actual frost deposits by reason of great dew point depression, the frost record more particularly relates to such freezing temperatures as were deemed equivalent to killing frosts.

Tabulated data are from the following periods of observations: Snowfall data, twenty years; humidity, fifteen years. Remainder of data is for the full period of observation, twenty-five years, January 1, 1879, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	46	59	77	33	- 5	53	39	0.5	3	0.5	0.8	0.6	1.8	58	1.42	34	1.49	NW.
January.....	45	58	77	31	5	53	40	0.5	3	0.3	0.4	0.9	6.0	62	1.41	34	1.44	NW.
February.....	49	62	82	35	5	52	44	0.4	3	0.1	0.2	0.5	2.2	55	1.46	27	1.40	NW.
Winter mean.....	47	60	82	33	5	52	44	1.4	9	0.9	1.4	2.0	.....	58	1.43	32	1.44	NW.
March.....	56	70	89	42	21	59	53	0.3	2	0.2	0.0	0.1	2.0	43	1.42	18	1.18	NW.
April.....	64	79	a 98	50	29	68	59	0.2	1	0.0	0.2	0.0	0.3	36	1.52	13	1.14	NW. b
May.....	72	87	a 105	58	40	77	69	0.4	2	0.4	1.8	0.0	0.0	35	2.01	13	1.51	NW. b
Spring mean.....	64	79	98	50	29	68	59	0.9	5	0.6	2.0	0.1	.....	38	1.65	15	1.28	NW.
June.....	80	94	a 113	66	49	83	75	0.6	4	0.4	0.0	0.0	0.0	41	2.97	16	2.23	E.
July.....	81	95	a 112	69	56	86	78	2.2	8	0.1	3.2	0.0	0.0	60	4.94	29	4.08	E.
August.....	79	93	a 110	68	52	83	76	1.6	8	0.1	3.2	0.0	0.0	63	4.87	32	4.20	E.
Summer mean.....	80	94	113	68	52	83	76	4.4	20	0.6	12.4	0.0	.....	55	4.26	26	3.50	E.
September.....	73	87	a 104	62	42	77	69	1.3	6	0.2	1.4	0.0	0.0	63	3.87	33	3.61	E.
October.....	63	78	94	50	28	67	60	0.9	4	0.0	1.4	0.0	0.0	60	2.62	30	2.39	E.
November.....	52	67	85	39	18	55	46	0.4	3	0.0	0.5	0.3	5.4	58	1.71	31	1.72	NW.
Fall mean.....	63	77	85	50	18	55	46	2.6	13	0.2	3.3	0.3	.....	60	2.73	31	2.57	E.
Annual mean.....	63	77	113	50	- 5	68	59	9.3	47	2.3	19.1	2.4	6.0	53	2.52	26	2.20	NW.

a Too high—improper exposure.

b Also W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	None.....	June 29; July 3-5.	1900	None.....	June 21, 22, 26-28; July 15, 16; Aug. 14-16, 23, 28.
1895	Feb. 15.....	July 6, 7.	1901	.....do.....	June 18-21, 23, 24; July 5.
1896	None.....	May 26-29; June 8-11, 14-20.	1902	.....do.....	May 25; June 13, 16, 17, 19, 20, 23-26; July 30.
1897	.....do.....	June 22-25.	1903	.....do.....	June 27-30; July 1, 29-31; Aug. 1.
1898	.....do.....	June 25, 26; July 28, 29.			
1899	Feb. 12.....	Sept. 2.			

TEXAS.

Central District: McLENNAN COUNTY. Station: WACO.

E. H. HALL, Observer.

[Established April, 1867. Latitude, 31° 37' N. Longitude, 97° 10' W. Elevation, 424 feet.]

This station is located in the level bottom of the Brazos River, but has a range of hills to the north and northwest. The maximum and minimum thermometers are exposed in a standard cotton-region thermometer shelter attached to the east side of the depot of the Houston and Texas Central Railroad. The shelter is 5 feet above the ground.

The rain gage is exposed in an open space near the depot and 20 feet from a fence; the top of the gage is 2.5 feet above the ground.

Tabulated data are for the following periods of observation: Monthly and annual temperature and precipitation means, thirty-six years; mean maximum and mean minimum temperatures, eight years; absolute maximum and minimum temperatures, and number of days with maximum above 90° and with minimum below 32°, fourteen years.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.			Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.			In.	In.
December.....	52	60	85	37	10	62	45	1.9	4	0.2	2.0			0.5	3.0
January.....	48	59	84	38	6	56	37	2.9	4	1.8	0.8			T.	T.
February.....	51	60	89	37	— 5	58		2.4	3	0.0	0.6			0.8	3.5
Winter mean.....	50	60		37				7.2	11	2.0	3.4			1.3	
March.....	58	72	90	45	18	62	53	3.9	5	3.8	2.4			0.0	0.0
April.....	67	78	97	55	32	72	62	4.3	5	2.4	4.0			0.0	0.0
May.....	75	86	98	66	38	80	73	4.5	6	3.8	5.6			0.0	0.0
Spring mean.....	67	79		55				12.7	16	10.0	12.0			0.0	
June.....	82	93	104	72	53	86	79	3.2	5	1.0	3.2			0.0	0.0
July.....	85	96	106	75	64	89	83	2.1	4	0.3	9.0			0.0	0.0
August.....	85	97	105	75	54	88	82	2.2	4	0.0	4.0			0.0	0.0
Summer mean.....	84	95		74				7.5	13	1.9	16.2			0.0	
September.....	78	81	102	67	31	82	74	3.1	4	0.8	6.2			0.0	0.0
October.....	67	81	96	58	34	72	63	2.2	3	0.0	3.4			0.0	0.0
November.....	57	69	88	46	24	63	52	2.7	4	3.4	10.4			0.0	0.0
Fall mean.....	67	80		57				8.0	11	4.2	20.0			0.0	
Annual mean.....	67	78	106	56	— 5			35.4	51	18.1	51.6			1.3	3.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 23.....	July 2-4.	1899	Feb. 12-14.....	July 24; Aug. 4, 10, 15, 16, 19-26, 28, 30.
1895	Feb. 7-9.....	Aug. 1, 2, 12, 14.	1900	None.....	June 23, 27, 28, 30.
1896	None.....	June 18-22, 29; July 1-6, 8, 27-31; Aug. 1, 5, 16, 17, 19-24; Sept. 5, 6.	1901	.....do.....	June 18-21; July 3-5, 7, 8, 13-16, 19-22, 29, 31; Aug. 3-5, 9-13, 17-21, 25-30.
1897	.....do.....	June 22, 23; July 5-11, 14-16, 18, 22, 24-31; Aug. 1, 5-10.	1902	.....do.....	June 9-15, 18-21, 25-27; July 11, 15, 19; Aug. 3, 4, 7, 10-14, 17, 22-31.
1898	.....do.....	July 21-24; Aug. 8, 19, 20, 24-27.	1903	.....do.....	July 18, 19, 21-24; Aug. 17.

TEXAS.

Eastern District: ANDERSON COUNTY. Station: PALESTINE.

PATRICK McDONOUGH, Observer.

[Established by Signal Service December 3, 1881. Latitude, 31° 45' N. Longitude, 95° 40' W. Elevation, 485 feet.]

During the history of the station the office has been located in the following-named buildings:

I. and G. N. Building, December 3, 1881, to October 3, 1888.

Henry Ash Building, October 4, 1888, to October 25, 1894. Roof exposure.

Colley-Wright Building, October 26, 1894, to January 31, 1900. Roof exposure.

City Hall Building, February 1, 1900, to present time. Roof exposure. Elevation of thermometers, 73 feet; rain gage, 68 feet.

The office which was first occupied is located in quite a large wooded park and isolated from other buildings, but the others have been in the business center of the city. The neighboring country is rolling or slightly hilly woodland, and is drained by the Trinity River, about 14 miles to the westward, and the Neches River, about 11 miles to the eastward, the station being on the divide.

Tabulated data are from the following periods of observation: Humidity, fifteen years. Remainder of data is from the full period of observation, twenty-two years—January 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. c.	Gr. s.	P. c.	Gr. s.	
December.....	51	60	81	42	8	64	45	3.6	8	1.4	11.0	0.7	9.2	83	2.83	64	3.00	S.
January.....	47	55	81	33	0	56	40	4.3	10	1.6	3.9	1.1	3.0	83	2.54	67	2.83	S.
February.....	51	60	82	42	- 6	60	40	3.5	10	1.4	5.0	0.8	3.2	84	2.77	64	3.00	S.
Winter mean.....	50	58		39				11.4	28	4.4	19.9	2.6		83	2.71	65	2.94	S.
March.....	58	68	88	49	20	64	53	3.9	10	4.7	4.7	0.7	1.0	84	3.55	61	3.75	S.
April.....	67	76	92	57	36	70	63	4.0	8	4.6	4.8	0.0	0.0	84	4.83	58	4.63	S.
May.....	72	82	93	63	39	77	69	5.0	9	1.5	4.2	0.0	0.0	80	5.61	65	6.28	S.
Spring mean.....	66	75		56				12.9	27	10.8	13.7	0.7		83	4.66	61	4.89	S.
June.....	79	88	100	69	48	82	77	4.0	8	1.8	9.8	0.0	0.0	88	7.49	63	7.32	S.
July.....	82	92	103	72	62	84	80	3.0	8	3.2	1.6	0.0	0.0	88	7.77	62	7.90	S.
August.....	82	92	106	72	54	84	79	2.4	7	1.3	3.4	0.0	0.0	89	7.82	63	7.78	S.
Summer mean.....	81	91		71				9.4	23	6.3	14.8	0.0		88	7.69	63	7.67	S.
September.....	76	87	104	66	43	81	72	3.3	7	0.2	1.0	0.0	0.0	86	5.43	62	6.78	NE.
October.....	67	78	97	57	34	72	62	3.6	6	0.7	5.7	0.0	0.0	85	4.56	61	4.87	NE.
November.....	57	67	87	48	20	62	51	3.9	8	1.9	6.0	0.7	1.6	85	3.46	64	3.56	S.
Fall mean.....	67	77		57				10.8	21	2.8	12.7	0.7		85	4.48	62	5.07	NE.
Annual mean.....	66	75	106	56	- 6			44.5	99	24.3	61.1	4.0	9.2	85	4.89	63	5.14	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 24, 25; Feb. 12; Dec. 28, 29.	July 2, 3.	1900	Jan. 3, 29; Feb. 9, 17, 18.	None.
1895	Jan. 9, 13, 26, 29, 31; Feb. 7, 8, 12-14, 16, 17.	Sept. 12.	1901	Feb. 23; Dec. 14-16, 18, 20.	July 13.
1896	Jan. 4.	June 28; Aug. 1, 6; Sept. 5.)	1902	Jan. 26, 27.	None.
1897	Jan. 25-28; Dec. 4.	July 26; Aug. 4, 5.	1903	Feb. 16, 17.	Do.
1898	Dec. 10, 11.	July 22, 23.			
1899	Jan. 1, 2, 31; Feb. 1, 7, 8, 10-14.	Aug. 23.			

TEXAS.

Western Division: MENARD COUNTY. Station: MENARDVILLE.

LOUIS SCHNEIDER, Observer.

[Established by the Signal Service in May, 1889. Latitude, 30° 55' N. Longitude, 99° 45' W. Elevation, 1,960 feet.]

Menardville is located near the headwaters of the San Saba River, and is surrounded by rolling prairies. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter in an open space and about 4 feet from the ground. The rain gage is also located in the open, the top of the gage being about 2 feet above the ground.

The temperature means are obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY, 1889, TO DECEMBER, 1903.

Months.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	47	58	83	31	5	59	39	1.3	1	1.1	1.0	0.4	3.0
January.....	46	59	85	31	7	52	40	1.2	3	0.2	1.7	0.6	2.0
February.....	48	61	87	33	3	53	38	0.8	2	0.0	0.4	0.6	2.0
Winter mean.....	47	59		32				3.3	6	1.3	3.1	1.0	
March.....	56	70	92	42	18	59	51	0.9	2	0.5	4.1	0.1	0.5
April.....	66	78	101	50	30	70	62	1.7	3	0.5	2.0	0.0	0.0
May.....	72	83	104	59	27	78	67	3.2	5	3.1	4.8	0.0	0.0
Spring mean.....	65	77		50				5.8	10	4.1	10.9	0.1	
June.....	78	91	108	64	43	85	72	3.0	4	1.3	0.3	0.0	0.0
July.....	82	94	105	69	54	85	79	1.8	2	0.0	4.6	0.0	0.0
August.....	80	96	106	65	51	85	76	2.1	4	1.1	1.3	0.0	0.0
Summer mean.....	80	94		66				6.9	10	2.4	6.2	0.0	
September.....	74	88	102	60	38	77	68	3.3	1	0.1	7.1	0.0	0.0
October.....	65	79	98	51	27	68	60	1.8	3	0.0	2.3	0.0	0.0
November.....	53	68	89	40	13	58	48	1.5	2	0.6	2.0	0.0	0.0
Fall mean.....	64	78		50				6.6	9	0.7	11.4	0.0	
Annual mean.....	64	77	108	50	3			22.6	35	8.5	31.6	1.7	3.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24.....	May 6. Record incomplete.	1899	Missing.....	Missing.
1895	Feb. 6-8, 16.....	None.	1900	Record incomplete...	Record incomplete.
1896	None.....	April 26; May 26, 30, 31; June 7-9, 11, 16-20, 28; July 1, 2, 4; Aug. 2, 7, 15, 22, 27. June 22; July 14, 20, 23-27; Aug. 5.	1901	Dec. 15.....	July 7; Aug. 18, 22, 28-30.
1897	Jan. 25, 26. Record incomplete.		1902	None.....	June 15, 16, 19, 25-27, 29, 30; July 15, 18, 19; Aug. 3, 9-11, 14-21, 23-31; Sept. 1.
1898	Dec. 10.....	Record incomplete.	1903	.....do.....	June 24; July 18-21, 24, 25; Aug. 17, 30.

TEXAS.

Central Division: BRAZOS COUNTY. Station: COLLEGE STATION.

J. H. B. PIPER, Observer.

[Established by the Signal Service in May, 1882. Latitude, 30° 35' N. Longitude, 96° 18' W. Elevation, 360 feet.]

The station is located in the Brazos Valley, about 5 miles from the river. The maximum and minimum thermometers are exposed in a louvered box about 4 feet square, located on one of the buildings of the Agricultural and Mechanical College, 4 feet above the roof. The rain gage is located about 4 feet from the shelter and 4 feet above the roof.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1888, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December	53	63	83	41	6	58	46	3.5	4	1.7	0.1			N.N.
January	50	59	88	39	10	57	47	4.2	8	0.8	7.1			N.
February	52	63	90	40	5	62	39	2.6	6	1.2	2.3	0.4		N.N.
Winter mean	52	62		40				10.3	18	3.7	9.5			N.
March	60	71	90	51	20	65	48	2.5	5	2.1	2.4	0.0	0.0	S.S.
April	68	76	95	56	37	73	64	3.3	5	1.4	2.7	0.0	0.0	S.S.
May	74	84	99	67	46	77	70	4.6	5	9.1	2.4	0.0	0.0	S.S.
Spring mean	67	77		58				10.4	15	12.6	7.5	0.0		S.
June	81	91	108	71	52	86	77	3.6	5	3.5	9.0	0.0	0.0	S.S.
July	82	93	110	72	52	86	72	2.5	6	0.4	3.5	0.0	0.0	S.S.
August	83	93	110	73	41	87	80	1.8	3	1.8	1.2	0.0	0.0	S.S.
Summer mean	82	92		72				7.9	14	5.7	13.7	0.0		S.
September	78	88	104	66	41	83	75	3.7	3	1.8	14.9	0.0	0.0	S.S.
October	69	81	100	58	34	74	66	2.3	4	0.2	0.1	0.0	0.0	N.N.
November	58	69	92	48	20	63	53	3.2	5	5.6	6.1	T.	T.	N.N.
Fall mean	68	79		57				9.2	12	7.6	21.1	T.		N.
Annual mean	67	78	110	57	5			37.8	59	29.6	51.8	0.4		S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 24-27; Feb. missing; Dec. 27-29.	June 10-30; July and Aug. missing.	1901	Jan. missing; Feb. 23; Nov. 4, 6; Dec. 9, 16-19.	Record incomplete.
1895	Jan. 9, 10, 13; Feb. 7-9, 12, 14-16; Mar. 2.	Aug. missing.	1902	Jan. 26-28.....	July 10, 14, 15, 20; Aug. 1, 7, 25-29; Sept. 2, 3, 8.
1896	Jan. 4, 20.....	Sept. 5.	1903	Feb. 16, 17.....	June 18, 28; July 12, 19-22, 24; Aug. 16, 17, 30; Sep. 12.
1897	Jan. 25-28.....	July 14, 26, 27.			
1898	Dec. missing.....	None.			
1899	Feb. missing.....	Do.			
1900	Jan. 29; Feb. and Dec. missing.	July-Oct. missing.			

TEXAS.

Southwestern Division: GILLESPIE COUNTY. Station: FREDERICKSBURG.

ARTHUR STREIGLER, Observer.

[Established by the Signal Service in August, 1878. Latitude, 30° 15' N. Longitude, 96° 53' W. Elevation, 1,742 feet.]

This station is located in a valley surrounded by low mountains. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter attached to the north side of a frame dwelling, the shelter having an elevation of 5 feet above the ground.

The rain gage is located on a fence about 30 feet east of a tree 20 feet high. The top of the gage is 6 feet above the ground. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST, 1878, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	
December.....	50	61	82	36	11	61	42	1.6	3	1.1	1.0	NW.
January.....	49	58	79	36	11	58	42	1.5	4	0.2	2.4	NW.
February.....	51	59	84	39	-1	58	40	1.7	3	0.5	0.2	NW.
Winter mean.....	50	59		37				4.8	10	1.8	3.6	NW.
March.....	58	69	100	47	19	70	53	1.6	5	1.4	4.3	SE.
April.....	66	78	93	56	32	71	63	3.2	5	2.0	7.4	S.
May.....	72	82	96	64	38	76	68	3.5	7	3.5	6.2	S.
Spring mean.....	65	76		56				8.3	17	6.9	17.9	S.
June.....	78	89	104	68	48	84	73	2.8	6	1.5	0.4	S.
July.....	81	91	102	69	59	86	77	2.1	7	0.3	6.6	S.
August.....	80	94	102	71	57	85	75	2.4	4	1.5	1.9	S.
Summer mean.....	80	91		69				7.3	17	3.3	8.9	S.
September.....	75	86	102	64	43	79	70	3.2	5	0.1	2.9	S.
October.....	66	78	93	54	28	72	61	2.2	5	0.1	2.4	S.
November.....	55	69	86	40	24	61	47	2.6	4	4.0	5.3	S.
Fall mean.....	65	78		55				8.0	14	4.2	10.6	S.
Annual mean.....	65	76	104	54	-1			28.4	58	16.2	41.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 12, 25; Dec. 28, 29.	July 2, 3.	1899	Jan. 1; Feb. 12.....	Mar. 25; Aug. 16.
1895	Jan. 9; Feb. 1, 7, 8, 12-17	None.	1900	Jan. 29; Feb. 17, 18...	None.
1896	Jan. 1; Dec. 2.....	Do.	1901	Feb. 24; Dec. 15.....	Aug. 21, 28-30.
1897	Jan. 25-28.....	July 26; Aug. 5.	1902	Jan. 5, 27; Mar. 6.....	June 26-29; Aug. 26-29.
1898	Jan. 2; Dec. 10.....	July 23.	1903	Jan. 12; Feb. 16.....	None.

TEXAS.

Coast Division: HARRIS COUNTY. Station: HOUSTON.

J. A. McNABB, Observer.

[Established in May, 1867. Latitude, 29° 45' N. Longitude, 95° 15' W. Elevation, 53 feet.]

This station is located in the residence portion of Houston. The contour of the surrounding country is quite level. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter attached to the north side of a frame building, and are about 4 feet above the ground.

The rain gage is located 13 feet from a two-story frame building, and is supported by a post, which gives its top an elevation of 9 feet above the ground.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY, 1867, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxi- ma.	Absol- ute maxi- mum.	Mean of the mini- ma.	Absol- ute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	54	63	80	42	15	59	49	3.0	8	3.2	5.7
January.....	52	61	80	42	18	63	45	4.4	8	2.2	7.3
February.....	55	61	82	42	6	63	42	3.6	9	2.1	4.7
Winter mean.....	54	62		42				11.0	25	7.5	17.7
March.....	62	72	88	53	23	67	58	3.5	8	2.4	4.2
April.....	70	78	92	58	34	73	66	3.7	6	1.1	6.6
May.....	76	85	97	66	45	79	71	5.0	5	0.4	3.1
Spring mean.....	69	78		59				12.2	19	3.9	13.9
June.....	81	90	101	72	55	84	78	5.5	9	1.5	3.8
July.....	83	92	104	73	55	86	80	37	11	4.4	14.8
August.....	82	92	102	74	54	87	79	4.3	11	2.1	10.7
Summer mean.....	82	91		73				13.5	31	8.0	29.3
September.....	78	88	99	69	47	82	75	4.8	8	3.8	5.4
October.....	70	81	99	60	36	74	66	3.0	5	2.3	1.8
November.....	61	71	87	51	30	67	56	3.7	7	1.6	5.0
Fall mean.....	70	80		60				11.5	20	7.7	12.2
Annual mean.....	69	78	104	58	6			48.2	95	27.1	73.1

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 1, 24-27, 30; Feb. 5, 12, 13, 15, 16, 24-26; Mar. 26; Dec. 28, 29.	June 30; July 1-6, 8, 20; Aug. 3, 14.	1900	Jan. 2-4, 29, 30; Feb. 9, 10, 17-19; Mar. 1, 2; Nov. 12, 13.	June 9, 19, 23, 26; Aug. 28.
1895	Jan. 9-11, 13, 26, 29, 31; Feb. 7, 14; Mar. 2; Dec. 4, 5, 29-31.	June 3, 26; July 6-8, 13-19, 21, 22, 25-28, 31; Aug. 3, 14; Sept. missing.	1901	Jan. 19; Feb. 14, 24, 25; Mar. 7; Dec. 10, 11, 15-22.	June 15, 17-25, 29; July 3-6, 8, 9, 13, 14, 16, 18, 19, 21, 30; Aug. 1-5, 11-19, 21, 22, 27-31; Sept. 1, 5, 11-19, 21, 22, 27-31.
1896	Jan. 1, 2, 4-6; Dec. 2-5.	June 11, 18-20, 28-30; July 1-3, 7-10; Aug. 2, 3, 6-8, 16, 19-23; Sept. 5, 6.	1902	Jan. 6-8, 22, 23, 27-29; Feb. 16.	May 28, 30; June 6, 7, 9-22, 24-26; July 2, 4-7, 9, 10, 14-21; Aug. 3-31; Sept. 1, 2, 4, 9, 10, 12.
1897	Jan. 7, 8, 25-30; Feb. 1-3; Dec. 4-6.	June 21-23; July 3-5, 7-10, 12, 14, 15, 19-21, 25-28, 30, 31; Aug. 1, 3-6, 9-12.	1903	Jan. 12, 13; Feb. 16-18; Nov. 19, 20.	June 6-10, 19, 20, 23-25, 27; July 8-10, 12, 15-24; Aug. 29, 30; Sept. 10, 15.
1898	Jan. 1-4; Nov. 22, 23; Dec. 5, 6, 25-27.	None.			
1899	Jan. 1-3, 25, 26, 29; Feb. 7-15.	Aug. 8, 9, 16, 22-25.			

TEXAS.

Southwestern Division: KINNEY COUNTY. Station: FORT CLARK.

R. S. WOODSON, Observer.

[Established in August, 1852. Latitude, 29° 16' N. Longitude, 100° 24' W. Elevation, 1,050 feet.]

The contour of the country in the vicinity of Fort Clark is undulating and rough. The maximum and minimum thermometers are exposed in a louvered box, 5 feet above sod and 40 feet from the hospital building of the fort. The rain gage is located in an open space 10 feet from the shelter; its top is 2.5 feet above the ground.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1852, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	52	63	85	37	15	68	42	1.6	3	1.0	23.0			NW.
January.....	51	63	82	37	11	60	42	0.8	4	T.	0.6			E.
February.....	55	68	89	40	10	62	42	0.9	2	0.2	4.0			E.
Winter mean.....	53	65		38				3.3	9	1.2	27.6			E.
March.....	63	73	96	49	18	70	54	1.1	4	0.6	0.3			SE.
April.....	70	81	103	56	38	76	64	1.6	4	1.0	0.2	0.0	0.0	E.
May.....	77	87	105	63	49	82	70	3.4	4	2.1	0.6	0.0	0.0	E.
Spring mean.....	70	80		56				6.1	12	3.7	1.1			E.
June.....	83	94	109	68	47	88	72	3.1	5	0.2	1.2	0.0	0.0	SE.
July.....	84	95	108	72	60	90	77	2.1	2	0.3	1.3	0.0	0.0	SE.
August.....	84	96	105	72	55	89	77	2.2	2	0.4	0.7	0.0	0.0	E.
Summer mean.....	84	95		71				7.4	9	0.9	3.2	0.0		SE.
September.....	78	90	107	67	47	83	72	3.6	3	0.1	7.9	0.0	0.0	SE.
October.....	70	82	98	58	38	76	64	1.8	4	0.3	1.6	0.0	0.0	SE.
November.....	59	73	94	47	26	66	47	1.2	3	0.3	0.5			SE.
Fall mean.....	69	82		57				6.6	10	0.7	10.0			SE.
Annual mean.....	69	80	109	56	10			23.4	40	6.5	41.9			SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 24; Dec. 28, 29...	Apr. 24; May 6; June 24-27; July 1-9, 20.	1899	Jan., Feb., missing...	Aug. 16-19.
1895	Feb. 2, 7-9, 15-17; Dec. 30, 31.	June 15; July 5-7, 10, 11, 14, 16-22, 24-31; Aug. 2-5, 15, 16, 23, 27.	1900	Feb. 17; Dec., missing.	June 17-20, 23, 27, 28; July 26; Aug., Sept., missing.
1896	None.....	May 30, 31; June 1-11, 16-21, 23, 26-31; July 1-4, 9, 24, 25, 27, 31; Aug. 1-4, 6, 7, 9, 10, 15, 16, 18-22, 30; Sept. 5-8.	1901	Jan., Feb., missing; Dec. 15, 16.	June 19-22, 24-27; July 5-11, 19, 21, 22, 23, 27-29; Aug. 5-7, 9, 14-19, 22, 28-31; Sept. 1.
1897	Jan. 25-29.....	June 3, 4, 7, 8-10, 15-18, 21-26; July 2-4, 9, 14, 16-20, 22, 24-29; Aug. 5, 6, 8, 9, 11.	1902	Jan. 29, 31.....	June 16-19, 25-30; July 15-20; Aug. 9, 10, 19, 20, 28-31.
1898	Jan., Feb., none; Dec., missing.	May 20; June, missing; July 23, 24; Aug. missing.	1903	Jan. 12; Feb. 15-17...	None.

TEXAS.

Southern District: BEXAR COUNTY. Station: SAN ANTONIO.

ALLEN BUELL, Observer.

[Established by the Signal Service in February, 1877. Latitude, 29° 27' N. Longitude, 98° 28' W. Elevation, 683 feet.]

Though the station was opened February 1, 1877, yet up to March, 1885, no systematic records were kept.

Surrounding the station at varying distances of a mile or more—north, east, and west—are ridges or low hills, while to the south and southeast the country is open and flat. The location of the office has been frequently changed, as many as seven different buildings having been occupied.

The various instruments are exposed on the roof of the building. The thermometers, 79.82 feet above ground, are mounted in a standard instrument shelter, the bottom of which is 10.88 feet above the roof. The rain gage, 16 feet west of the instrument shelter, is fixed to a platform. The top of the gage is 72.31 feet above ground.

The humidity data are from fifteen years' record. The remainder of tabulated data is from the full period of observation, eighteen and one-half years—July 1, 1885, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	In.	P. ct.	Grs.	P. ct.	Grs.				
December.....	55	65	86	44	15	66	47	1.7	7	1.3	2.4	0.1	2.7	75	2.75	53	2.85	N.	
January.....	52	62	82	42	6	59	44	1.7	8	1.6	1.6	0.0	0.2	76	2.60	65	3.26	N.	
February.....	55	65	90	45	4	62	45	1.9	8	0.2	2.6	0.2	4.2	75	2.75	54	3.00	N.	
Winter mean.....	54	64	.....	44	.....	.....	.....	5.3	23	3.1	6.6	0.3	.....	75	2.70	57	3.04	N.
March.....	62	72	97	51	21	68	57	1.8	7	1.6	2.1	0.0	0.0	75	3.39	50	3.50	SE.	
April.....	70	80	99	59	35	74	66	2.9	8	1.8	7.7	0.0	0.0	80	4.91	53	4.65	SE.	
May.....	75	85	97	65	44	79	63	3.0	7	3.1	4.2	0.0	0.0	83	6.41	57	6.04	SE.	
Spring mean.....	69	79	.....	58	.....	.....	.....	7.7	22	6.5	14.0	0.0	.....	79	4.90	53	4.73	SE.
June.....	81	90	103	71	54	84	76	2.7	7	2.2	4.0	0.0	0.0	83	7.52	52	6.62	SE.	
July.....	83	94	106	73	64	85	80	2.6	6	0.3	0.8	0.0	0.0	83	8.01	50	6.97	SE.	
August.....	83	94	103	73	57	86	80	3.1	7	0.4	7.8	0.0	0.0	85	7.71	50	6.76	SE.	
Summer mean.....	82	93	.....	72	.....	.....	.....	8.4	20	2.9	12.6	0.0	.....	84	7.75	51	6.78	SE.
September.....	78	88	100	68	46	82	74	3.4	8	1.6	1.9	0.0	0.0	83	6.62	55	6.39	SE.	
October.....	70	82	97	59	37	73	67	1.8	5	1.4	0.8	0.0	0.0	78	4.79	51	4.77	SE.	
November.....	60	71	90	50	22	65	56	1.8	7	0.4	4.6	0.0	0.0	78	3.35	56	3.68	SE.	
Fall mean.....	70	80	.....	59	.....	.....	.....	7.0	20	3.4	7.3	0.0	.....	80	4.92	54	4.95	SE.
Annual mean.....	69	79	106	58	4	.....	.....	28.4	85	15.9	40.5	0.3	4.2	80	5.07	54	4.87	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 28, 29.	July 2, 3.	1900	Jan. 29; Feb. 18.....	June 22.
1895	Feb. 7, 8, 14-17.....	Aug. 2, 3, 5, 14, 15.	1901	Dec. 15.....	June 18, 19; July 5-7; Aug. 6, 13, 15, 16, 24, 29, 30.
1896	None.....	June 18, 28; July 8; Aug. 22; Sept. 5, 6.	1902	None.....	June 28; Aug. 27-29.
1897	Jan. 25-28.....	July 13, 14, 26, 27.	1903	Feb. 17.....	None.
1898	Dec. 10.....	July 23.			
1899	Jan. 1; Feb. 7, 8, 10-13.	July 23; Aug. 16-20.			

TEXAS.

Coast Region: GALVESTON COUNTY. Station: GALVESTON.

L. H. MURDOCH, Section Director.

[Established by Signal Service April 19, 1871. Latitude, 29° 18' N. Longitude, 94° 50' W. Elevation, 7 feet.]

Galveston Island is about 28 miles long and 2 miles wide, extending along the mainland from southwest to northeast and separated from the latter by a body of water from 2 to 6 miles wide. The elevation of the island ranges from sea level to about 9 feet above. Galveston is located at the extreme northeastern end of the island and is about 6 miles from the mainland.

The meteorological instruments have been exposed at the following-named locations: April 19, 1871, 67 and 69 Strand street; September 1, 1874, Strand and Twenty-third streets; July 30, 1878, United States custom-house; May 9, 1882, Gulf, Colorado and Santa Fe Railroad Building; March 15, 1883, United States custom-house; April 4, 1888, Cotton Exchange Building; June 25, 1898, Levy Building; November 27, 1900, Improvement, Loan and Trust Building.

Tabulated data are from the following periods of observation. The sunshine data are from fourteen years, 1890-1903; humidity, fifteen years, 1889-1903; remainder of data is for the full period of observation, thirty-three years, April 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	Average depth.	Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage possible.
December.....	° F. 57	° F. 62	° F. 77	° F. 51	° F. 18	° F. 66	° F. 50	In. 3.8	11	2.3	In. 5.4	In. 3.2	In. 0.2	In. 6.0	P. c. 84	Gr. 4.07	P. c. 81	Gr. 4.35	163	51	S.E.
January.....	53	58	75	47	11	65	40	3.7	11	1.9	3.2	0.2	6.0	86	3.76	82	3.98	154	47	S.E.	
February.....	56	62	76	51	8	64	43	3.1	10	2.7	3.6	0.5	14.4	87	4.08	83	4.31	138	44	S.E.	
Winter mean.....	55	61	76	50	12	65	44	10.6	32	6.9	12.2	0.7	.....	86	3.97	82	4.21	152	47	S.E.
March.....	62	68	85	57	30	68	58	3.1	9	3.6	6.9	0.0	0.0	86	4.78	83	5.10	176	47	S.E.	
April.....	69	74	85	64	43	76	66	2.9	7	1.5	4.6	0.0	0.0	85	6.16	81	6.26	224	58	S.E.	
May.....	76	81	91	71	52	78	73	3.3	6	0.8	4.5	0.0	0.0	82	7.20	77	7.20	278	66	S.E.	
Spring mean.....	69	74	87	64	43	76	73	9.3	22	5.9	16.0	0.0	.....	84	6.05	80	6.19	226	57	S.E.
June.....	82	86	97	77	57	86	76	4.6	7	0.3	5.5	0.0	0.0	82	8.09	77	8.42	303	72	S.	
July.....	84	89	98	79	67	87	81	4.0	9	3.9	18.7	0.0	0.0	81	9.92	74	8.87	297	70	S.	
August.....	83	88	98	78	68	86	80	5.1	10	0.4	6.9	0.0	0.0	82	8.97	75	8.99	273	67	S.	
Summer mean.....	83	88	98	78	68	86	80	13.7	26	4.6	31.1	0.0	.....	82	9.19	75	8.76	291	70	S.
September.....	79	84	94	75	56	84	77	5.7	10	2.2	3.1	0.0	0.0	82	8.17	73	7.98	233	68	S.E.	
October.....	72	78	91	68	44	77	69	4.3	7	2.1	5.5	0.0	0.0	79	6.30	73	6.41	260	73	S.E.	
November.....	63	68	85	58	29	68	54	4.0	8	1.9	1.6	0.0	0.0	82	4.87	78	5.12	191	59	S.E.	
Fall mean.....	71	77	88	67	44	76	67	14.0	25	6.2	10.2	0.0	.....	81	6.45	75	6.50	235	67	S.E.
Annual mean.....	70	75	98	65	8	76	67	47.6	105	23.6	69.5	0.7	14.4	83	6.42	78	6.42	226	60	S.E.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 12, 25; Dec. 28, 29.	July 1, 2.	1898	None.	None.
1895	Jan. 9, 13; Feb. 7-9, 12-18.	None.	1899	Jan. 1; Feb. 7, 8, 11-13.	Do.
1896	Jan. 4.	Do.	1900	Jan. 31; Feb. 9, 16-18.	Do.
1897	Jan. 25-28; Dec. 4.	June 21; Aug. 4.	1901	Dec. 14, 20.	July 13; Aug. 15.
			1902	Jan. 27.	None.
			1903	Feb. 16, 17.	Do.

TEXAS.

Coast Division: BEE COUNTY. Station: BEEVILLE.

F. W. SHANNON, Observer.

[Established by the U. S. Weather Bureau in July, 1895. Latitude, 28° 19' N. Longitude, 97° 41' W. Elevation, 225 feet.]

This station is located in the suburbs of Beeville. The surrounding country is quite level. The maximum and minimum thermometers are exposed in a standard cotton-region thermometer shelter, which is located in a large open yard, 4 feet above the sod, and about 75 feet from the nearest building.

The rain gage is located near the shelter with its top 3 feet above the ground.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS JULY 22, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	55	67	87	40	14	57	49	1.5	5	1.7	1.4
January.....	54	66	86	41	19	57	50	1.6	5	1.9	1.4
February.....	56	69	96	44	5	61	46	2.2	5	0.0	7.1
Winter mean.....	55	67		42				5.3	15	3.6	9.9
March.....	65	77	99	54	24	70	61	2.0	4	0.9	6.1
April.....	71	82	99	59	37	73	67	2.0	4	0.5	1.3
May.....	77	89	101	65	47	82	74	3.0	5	4.2	1.5
Spring mean.....	71	83		59				7.0	13	5.6	8.9
June.....	82	94	106	70	57	86	78	2.4	11	3.0	6.4
July.....	85	96	106	72	65	87	82	4.2	6	0.2	16.4
August.....	85	98	106	72	64	88	80	2.7	5	3.4	2.0
Summer mean.....	84	96		71				9.3	15	6.6	24.8
September.....	81	94	102	67	46	84	78	2.6	6	1.1	0.7
October.....	73	86	103	58	30	78	70	2.7	5	2.7	4.6
November.....	63	76	95	50	30	69	59	2.0	4	T.	0.1
Fall mean.....	72	85		58				7.3	15	3.8	5.4
Annual mean.....	70	83	106	58	5	88	46	28.9	58	19.6	49.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JULY 22, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 32°	Maximum 95° or above.	Year.	Minimum below 32°	Maximum 95° or above.
1895		Aug. 1-16, 19-29; Sept. 2-6, 8-19, 21-23, 26-28.	1900	Jan. 3, 29, 30; Feb. 9, 10, 16-20, 22; Mar. 1; Nov. 12, 13, 26; Dec. 4, 21.	June 5, 9, 10, 13-20, 22-30; July 2, 3, 8-13, 28; Aug. 10; Sept. 10-12, 15-24; Oct. 2, 5-8.
1896	Jan. 1, 2, 4, 5; Feb. 15; Dec. 1-4.	Apr. 30; May 15, 25-31; June 1-12, 15-30; July 1-4, 6-11, 16-20, 23-29, 31; Aug. 1-3, 5-8, 10-16, 19-31; Sept. 1, 4-14, 17, 18.	1901	(Jan., Feb., Mar., and Apr. missing); Dec. 3, 9-11, 14-23, 29, 31.	May 6, 11, 20; June 1, 8, 10, 14-27; July 2-10, 14-16, 18, 20-22, 31; Aug. 1-8, 10-25, 27-31; Sept. 1-3, 6, 13, 14; Oct. 3, 4, 27, 28.
1897	Jan. 4-8, 25-30; Feb. 1, 2; Dec. 4-6.	Mar. 21; Apr. 8; May 25; June 2, 4, 12, 14-25; July 1-31; Aug. 1-7, 9-19, 23, 24; Sept. 3-5, 14, 16, 17, 20, 26, 28-30.	1902	Jan. 5, 6, 11, 22, 23, 27-31 (Feb. missing).	Apr. 30; May 27; June 9-26, 28, 29; July 1, 3, 6, 7, 12-23, 25, 26, 31; Aug. 1-31; Sept. 1-12, 15-18, 20-23, 26; Oct. 14.
1898	Jan. 1-4, 16, 20; Nov. 22, 23; Dec. 4, 5, 9-15, 25, 26, 31.	Apr. 27; May 30, 31; June 1-7, 15-26, 28-30; July 1-3, 6-14, 16-31; Aug. 1-5, 7-9, 12-21, 23-30; Sept. 1-5, 7, 10, 11, 13-18, 22-27, 29, 30; Oct. 1-4, 6-8, 11, 12, 17.	1903	Jan. 12, 13; Feb. 16, 17, 18.	(May missing); June 1, 18-26, 28; July 9, 12-16, 18-24; Aug. 6, 11, 14, 16-18, 20, 21, 24-26, 29-31; Sept. 1-9, 11-16, 21-24, 26, 27; Oct. 1-3, 7; Nov. 13.
1899	Jan. 1, 2, 7, 8, 14, 19, 24, 25, 28, 29, 31; Feb. 1, 5-16; Mar. 6; Nov. 3; Dec. 4, 15, 16, 20-24, 29, 30.	Mar. 23, 26; Apr. 28; June 12, 24-27, 29, 30; July 1, 8-13, 15-28, 31; Aug. 1-31; Sept. 1, 6-9, 11, 12, 14-16, 25, 26; Oct. 19-21.			

TEXAS.

Central Texas Coast: NUECES COUNTY. Station: CORPUS CHRISTI.

JOSEPH L. CLINE, Observer.

[Established by Signal Service February 1, 1887. Latitude, 27° 49' N. Longitude, 97° 25' W. Elevation, 8 feet.]

Corpus Christi is nearly 185 miles southwest of Galveston, Tex., 125 miles south-southeast of San Antonio, and 120 miles east of the Rio Grande. The station is near the central part of the city in the Hatch and Robertson Building, northwest corner Mesquite and Peoples streets, having been moved from the northeast corner of Chaparral and Starr streets July 1, 1901. The former location of the station was two blocks north-northeast of the present one, with practically the same exposure for all instruments.

The thermometers are exposed in a regulation Weather Bureau instrument shelter 13.1 feet above roof of the two-story building, 48.5 feet above the ground. The rain gage is 30 feet west of shelter on roof of same building. The top of the gage is 3 feet above the roof and 38 feet above the ground.

Tabulated data are from the following periods of observation: Humidity, fifteen years, 1889-1903. Remainder of data is from the full period of observation—seventeen years, February 1, 1887, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	58	65	86	51	20	68	51	1.3	7	0.4	0.9	0.0	0.0	86	4.03	78	4.48	N	
January.....	56	62	82	49	16	64	49	2.3	9	0.8	1.9	0.4	5.0	87	3.80	81	4.35	N	
February.....	58	64	88	52	11	64	47	2.2	8	1.3	3.5	0.3	4.4	87	4.08	79	4.54	N	
Winter mean.....	57	64	.....	51	.....	.....	.....	5.8	24	2.5	6.3	0.7	.....	87	3.97	79	4.46	N
March.....	64	70	96	58	28	69	60	1.8	8	0.1	3.0	0.0	0.0	86	4.94	79	5.36	SE	
April.....	70	75	92	66	44	74	68	1.5	6	0.4	1.4	0.0	0.0	86	6.43	80	6.59	SE	
May.....	76	80	96	71	44	78	74	2.7	5	1.4	8.7	0.0	0.0	86	7.80	80	7.97	SE	
Spring mean.....	70	75	.....	65	.....	.....	.....	6.0	19	1.9	13.2	0.0	.....	86	6.39	80	6.64	SE
June.....	80	85	97	75	59	82	77	2.6	7	1.0	5.5	0.0	0.0	86	8.84	79	9.18	SE	
July.....	82	87	98	77	68	83	81	1.8	5	1.3	2.2	0.0	0.0	87	9.51	77	9.51	SE	
August.....	82	87	98	77	65	84	80	2.4	6	2.5	2.2	0.0	0.0	88	9.33	77	9.23	SE	
Summer mean.....	81	86	.....	76	.....	.....	.....	6.8	18	4.8	9.9	0.0	.....	87	9.23	78	9.31	SE
September.....	79	85	97	74	54	82	76	3.9	10	7.2	7.2	0.0	0.0	86	8.05	75	8.46	SE	
October.....	73	79	91	67	42	75	69	2.0	7	0.4	2.9	0.0	0.0	84	6.49	74	7.14	SE	
November.....	64	71	89	58	30	69	60	2.3	7	0.7	8.6	0.0	T.	85	4.88	78	5.65	SE	
Fall mean.....	72	78	.....	66	.....	.....	.....	8.2	24	8.3	18.8	0.0	.....	85	6.52	76	7.08	SE
Annual mean.....	70	76	98	64	11	.....	.....	26.8	85	17.5	48.1	0.7	5.0	86	6.51	78	6.87	SE

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 25; Dec. 28, 29.	July 2.	1899	Jan. 1, 28, 31; Feb. 6-8; 10-14.	None.
1895	Jan. 9; Feb. 7-9, 12, 14-17; Dec. 30, 31.	None.	1900	Jan. 29; Feb. 17, 18....	June 23; Sept. 9.
1896	Nov. 30; Dec. 1.....	Do.	1901	Jan. 1; Dec. 14, 15, 20, 21, 29.	Mar. 9; May 31; June 10; Aug. 15, 17.
1897	Jan. 25-29; Feb. 1; Dec. 4.	July 12, 14.	1902	Jan. 26-28.....	June 27.
1898	Dec. 10-12.....	None.	1903	Feb. 16, 17.....	None.

TEXAS.

Coast Division: CAMERON COUNTY. Station: FORT BROWN.

JAMES R. CHURCH, Observer.

[Established November, 1846. Latitude, 25° 53' N. Longitude, 97° 29' W. Elevation, 57 feet.]

This station is located a few hundred feet from the Rio Grande, on a level prairie. The maximum and minimum thermometers are exposed in a standard cotton region thermometer shelter, 5 feet above sod and 60 feet from the hospital building of the fort. The rain gage is located 12 feet from the shelter; its top is 2.5 feet above the ground.

The mean temperatures were obtained from the daily extremes. The record is not continuous from 1846.

MONTHLY, SEASONAL, AND ANNUAL MEANS, NOVEMBER, 1846, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.				Mean humidity.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Relative, 8 p. m.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	P. ct.	P. ct.	
December.....	61	71	87	47	15	73	53	1.4	3	0.3	0.9	89	80	S.
January.....	59	70	87	46	20	71	51	1.5	4	1.6	3.5	91	82	S.
February.....	63	70	92	46	12	69	55	1.5	5	0.0	4.8	92	84	N.
Winter mean.....	61	70		46				4.4	12	1.9	9.2	91	82	S.
March.....	68	80	98	57	28	72	64	1.4	4	0.0	3.0	88	78	S.
April.....	73	83	95	60	37	79	66	0.7	3	0.9	0.0	88	81	SE.
May.....	78	88	99	69	51	82	74	2.2	3	0.0	1.9	88	78	E.
Spring mean.....	73	84		62				4.3	10	0.9	4.9	88	79	SE.
June.....	82	93	102	73	59	86	72	2.7	5	1.0	10.5	88	79	SE.
July.....	84	94	102	73	58	88	78	2.0	4	0.8	7.6	88	74	SE.
August.....	84	96	101	74	63	88	80	3.0	4	0.1	9.5	91	76	SE.
Summer mean.....	83	94		73				7.7	13	1.9	27.6	89	76	SE.
September.....	80	92	100	72	51	85	76	6.2	7	2.5	9.4	90	80	N.
October.....	74	86	99	63	38	79	69	3.6	4	1.0	5.8	88	78	N.
November.....	67	79	91	57	28	75	56	2.0	4	0.7	3.8	88	76	S.
Fall mean.....	74	86		64				11.8	15	4.2	19.0	89	78	N.
Annual mean.....	73	84	102	61	12			28.2	50	8.9	60.7	89	79	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 95° or above.	Year.	Minimum below 32°.	Maximum 95° or above.
1894	Jan. 23-25; Feb. 22, 25; Dec. 28, 29.	Apr. 27; June 10, 16, 18, 24, 30; July 1-4, 6-11, 15, 22, 23, 30; Aug. 14, 19, 22, 25; Sept. 1, 5-9; Oct. 5, 11.	1900	(No record for Jan.); Feb. 17, 18; Dec. 29, 31.	(June missing); July 1-5, 7-31; Aug. 1-31; Sept. 1-4, 7-22, 25-30; Oct. 1, 2, 4-7.
1895	Jan. 10; Feb. 7-9, 13-18; Dec. 30.	June 28-30; July 1, 11, 13, 15, 17, 19-22, 24, 26, 30, 31; Aug. 2-6, 8, 9, 12-24, 26-28.	1901	Jan. 1, 2, 16, 17; Feb. 12-14, 23; Nov. 14, 15; Dec. 1, 2, 8, 9, 13-23, 28, 29, 31.	Mar. 22, 24, 25 (Apr. missing); May 19; June 1, 3, 5-22, 24-26; July 1-6, 14, 18, 20-29, 31; Aug. 1-10, 12-19, 21, 27-31; Sept. 1-5, 8, 12.
1896	Nov. 29, 30 (Dec. missing).	Apr. 29; May 29; June 3, 4, 6-11, 17, 19-21, 23, 26-30; July 1, 2, 6-10, 15, 16, 18, 19, 22-31; Aug. 3, 5, 6, 8, 9, 11, 12, 14, 15, 17-30; Sept. 3, 5-7, 9, 10, 14.	1902	(No record for Jan.); Feb. 1, 2.	May 20; June 15-22, 27-30; July 3, 12-21, 23, 24, 27, 28; Aug. 1-15, 18-31; Sept. 1-12, 18-20, 22-25, 27.
1897	(Jan. to July missing); Dec. 4, 27, 31.	(Jan. to July missing); Aug. 1-6, 8, 9, 11-13, 15-18, 21; Sept. 25.	1903	Feb. 16.	June 8, 22, 25-27; July 12-16, 18, 20; Aug. 1, 2, 7, 8, 11-14; Oct. 1.
1898	Missing.	Missing.			
1899	Jan. 1, 2; Feb. 7-9, 12-14 (Nov. and Dec. missing).	Mar. 19, 23, 28, 31; July 1, 18-29; Aug. 1-31; Sept. 1, 7, 9, 11, 13, 18, 27.			

OKLAHOMA AND INDIAN TERRITORY.

By CHARLES M. STRONG,
Section Director.

OKLAHOMA AND INDIAN TERRITORY.

The Oklahoma and Indian Territory section presents wide diversification in topographical features, ranging from vast and treeless plains to rough, rugged, and heavily wooded mountains.

The eastern portion of the Cherokee, the western portion of the Creek, the Seminole, the greater portion of the Choctaw, and the central portion of the Chickasaw nations of the Indian Territory are hilly and mountainous in character, and heavily timbered. The remainder of the Territory consists of wide plains, well watered by the numerous rivers and streams that traverse the Territory from the northwest to southeast.

The greater portion of Oklahoma consists of wide, rolling prairies and high, upland plains. Along its eastern border hills and timbered sections extend and over portions of Comanche and Kiowa counties the Wichita Mountains rear their lofty elevations abruptly from the surrounding plains.

The rivers and streams flow from northwest to southeast over Oklahoma, with wide valleys rising gently to the elevation of the surrounding prairies and plains.

Elevations vary over the section from 400 to 3,500 feet, the average over the Indian Territory being about 800 feet and over Oklahoma about 1,200 feet above sea level. Variations in elevation are more marked over the Indian Territory than Oklahoma, on account of the more rugged character of its formation.

The principal rivers, extending generally from northwest to southeast through the full width of the section, are the Arkansas, Canadian, and Red rivers, with their tributaries, the Cimarron, North Canadian, and Washita rivers. These streams, with their numerous branches, give abundant water facilities to all portions of the section and an almost perfect system of drainage, carrying off, except in extreme cases, the surplus water without damage to the adjoining country.

A marked feature of the topography of the section is the uniformity in elevation along a north and south line, the range generally being within 200 feet. This is due largely to the trend of the country, which is nearly uniform from west to east over all portions. The variations are due to the valleys formed by the attrition of the principal water courses. The average slope is about 3 feet per mile across the section.

The western and central portions of the section being in the main covered by vast open prairies, free from obstructions in the form of hills or heavily timbered localities, give a free sweep to the wind, and also being, on an average, above the 1,200-foot plane in elevation, are necessarily dryer and cooler than the eastern portions, where hills and timber abound and where the general elevation is, on an average, on the 800-foot plane. As a consequence also of location, being farther removed to the westward and to a certain extent less subject to the moist winds from the Gulf of Mexico, the precipitation lessens, the range in amount being about 12 inches between the eastern and western portions. The decrease in amount is rapid across the Indian Territory, but becomes more gradual over Oklahoma. This is due to local showers being more frequent over the hilly, wooded portions of the eastern division, the moisture being carried across the open, heated plains of the western and central portions and being condensed and precipitated by the cooler, wooded surfaces of the hills. This is exemplified in a marked manner by the frequent and heavy precipitation over the Osage Nation, while to the westward and southward there will be only light showers, or an entire absence of rainfall. Differences of from 4 to 10 inches in the monthly amounts of precipitation have been observed.

The open plains are also marked by the rapidity with which the temperature cools down from day to night, under the effects of clear skies and rapid radiation. As a consequence the midsummer nights are, as compared with midday heat, cool, pleasant, and restful.

The following data have been secured from the records covering the conditions for the past twelve years over this section:

The mean annual temperature, in degrees Fahrenheit, was 60; the highest annual, 62° in 1896, and lowest, 57° in 1894.

The absolute maximum temperature was 116° in 1903 and the absolute minimum temperature 25° below zero in 1899.

The mean winter temperature was 38°; the highest, 41° in 1895, and lowest, 33° in 1898. The mean spring temperature was 60°; the highest, 63° in 1896, and lowest, 58° in 1892. The mean summer temperature was 80°; the highest, 82° in 1896, and lowest, 77° in 1903. The mean autumn temperature was 62°; the highest, 64° in 1899, and lowest, 60° in 1903.

The greatest annual range of temperature was 138° in 1899 and the least 112° in 1898.

The average date of killing frost in autumn was October 29 and in spring April 8.

The mean annual precipitation, in inches and tenths, was 31.7; the highest annual, 40.5 in 1902; the least, 22.8 in 1901. The average winter precipitation was 4.4; the greatest, 6.6 in 1902-3, and the least, 2.1 in 1901-2. The average spring precipitation was 10.8; the greatest, 17.3 in 1902, and the least, 4.9 in 1895. The average summer precipitation was 9.2; the greatest, 16.4 in 1895, and the least, 4.8 in 1894. The average autumn precipitation was 7.3; the greatest, 13.3 in 1902, and the least, 2.8 in 1894.

The greatest local monthly precipitation was 20.2 at Blackburn, Okla., in May, 1902, and the least, nothing, during the fall months of several years at different stations.

No data are at hand relative to the frequency of destructive wind, hail, and thunder storms over the section at large, but that gathered from special stations indicate only infrequent occurrence, averaging not more than two of wind and hail and six of excessive rains, caused by thunderstorms, during the past twelve years.

LIST OF COUNTIES OR NATIONS AND CLIMATOLOGICAL STATIONS.

County or nation.	Station.	District.	Page.	County or nation.	Station.	District.	Page.
OKLAHOMA (COUNTIES).				OKLAHOMA continued			
Beaver.....	Beaver.....	Western.....		Woods (see Jefferson)...		Central..	
Blaine (see Kingfisher).....		Central.....		Woodward (see Beaver).....		Western..	
Caddo (see Fort Sill).....		Western.....		INDIAN TERRITORY (NATIONS)			
Canadian (see Oklahoma).....		Central.....		Cherokee (see Fort Smith, Ark.).....		Eastern.....	
Cleveland (see Oklahoma).....		do.....		Chickasaw.....	Healdton..	Central.....	452
Comanche.....	Fort Sill.....	Western.....	451	Choctaw.....	Lehigh..	Eastern.....	453
Custer.....	Arapaho.....	do.....	447	Creek (see Lehigh).....		do.....	
Day (see Arapaho).....		Central.....		Modoc (see Fort Smith, Ark.).....		do.....	
Garfield (see Kingfisher).....	Jefferson.....	do.....	445	Ottawa (see Fort Smith, Ark.).....		do.....	
Grant.....	Mangum.....	Western.....	450	Peoria (see Fort Smith, Ark.).....		do.....	
Greer.....		Central.....		Quapaw (see Fort Smith, Ark.).....		do.....	
Kansas (see Jefferson).....	Kingfisher.....	do.....	448	Shawnee (see Fort Smith, Ark.).....		do.....	
Kay (see Jefferson).....		Western.....		Seminole (see Lehigh).....		do.....	
Kingfisher.....		Central.....		Seneca (see Fort Smith, Ark.).....		do.....	
Kiowa (see Fort Sill).....		do.....		Wyandot (see Fort Smith, Ark.).....		do.....	
Lincoln (see Oklahoma).....		do.....					
Logan (see Stillwater).....	Oklahoma.....	do.....	449				
Noble (see Stillwater).....		do.....					
Oklahoma.....		do.....					
Osage (see Stillwater).....		do.....					
Pawnee (see Stillwater).....		do.....					
Payne.....	Stillwater.....	do.....	446				
Pottawatomie (see Oklahoma).....		do.....					
Roger Mills (see Arapaho).....		Western.....					
Washita (see Arapaho).....		do.....					

STATE SUMMARY—OKLAHOMA AND INDIAN TERRITORY.

Temperature.

Station.	Number.	Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number days with	Maximum above 90°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.				
Beaver, Okla.....	1	57	71	43	112	June, 1896.....	-25	February, 1899.....	79	116	
Jefferson, Okla.....	2	58	73	44	111	July, 1901.....	-11	do.....	70	97	
Stillwater, Okla.....	3	59	71	47	107	August, 1901.....	-17	do.....	63	74	
Arapaho, Okla.....	4	59	73	46	111	July, 1901.....	-14	do.....	95	89	
Kingfisher, Okla.....	5	60	73	48	109	August, 1901.....	-15	do.....	74	76	
Oklahoma, Okla.....	6	59	70	49	104	—, 1901.....	-17	do.....	49	76	
Mangum, Okla.....	7	61	75	47	114	August, 1902.....	-17	do.....	74	76	
Fort Sill, Okla.....	8	61	74	48	109	August, 1896.....	-14	do.....	78	76	
Healdton, Ind. T.....	9	63	76	50	115	do.....	-14	do.....	94	63	
Lehigh, Ind. T.....	10	62	75	50	112	July, 1904.....	-15	do.....	84	58	

Frost.

Precipitation.

Station.	Number.	Average date of—				Date of—									
		First killing in autumn.		Last in spring.		Earliest killing in autumn.		Latest in spring.							
										Annual.	Spring.	Summer.	Autumn.	Winter.	
										Inches.	Inches.	Inches.	Inches.	Inches.	
Beaver, Okla.....	1	Oct. 23	Apr. 13	Sept. 27	Apr. 30					18.9	6.5	7.0	3.6	1.8	
Jefferson, Okla.....	2	Oct. 29	Apr. 15	Oct. 18	May 1					26.9	8.3	10.2	5.8	2.6	
Stillwater, Okla.....	3	Nov. 2	Apr. 11	Oct. 14	do					31.7	11.6	8.8	7.8	3.5	
Arapaho, Okla.....	4	Oct. 24	do	Oct. 8	do					27.2	10.0	8.6	6.2	2.4	
Kingfisher, Okla.....	5	Oct. 27	Apr. 12	Oct. 14	do					33.1	12.8	8.3	8.6	3.4	
Oklahoma, Okla.....	6	Nov. 2	Apr. 5	Oct. 7	Apr. 30					31.7	11.3	8.7	7.5	4.2	
Mangum, Okla.....	7	do	Apr. 3	Oct. 16	May 1					25.4	7.7	9.2	5.5	3.0	
Fort Sill, Okla.....	8	Oct. 29	Apr. 4	Oct. 14	do					30.1	9.8	8.4	8.0	3.9	
Healdton, Ind. T.....	9	Oct. 31	Apr. 7	do	do					32.7	11.7	8.0	7.4	5.6	
Lehigh, Ind. T.....	10	Oct. 21	Apr. 4	Oct. 8	Apr. 18					35.1	11.6	9.8	7.6	6.1	

OKLAHOMA.

Western Division: BEAVER COUNTY. Station: BEAVER.

C. O. TANNEHILL, Observer.

[Established by U. S. Weather Bureau in February, 1896. Latitude, 36° 45' N. Longitude, 100° 20' W. Elevation, 2,500 feet.]

This station is situated within the limits of the town of Beaver, which lies on the south slope of the Beaver River, and is about one-fourth of a mile distant from the stream. The general contour of the ground is a level plain, but to the northward of the river the country is broken and hilly.

The maximum and minimum thermometers are exposed in a cotton region shelter about 100 feet northward of the residence of the observer, and are about 4½ feet above the sod.

The rain gage is near the shelter, exposed in an open lot, and is about 100 feet distant from the nearest building. The top of the gage is 3 feet above the ground.

The mean temperature for this station has been obtained from the mean of the maximum and minimum temperature readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1896, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Year.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	48	74	21	- 4	39	29	0.7	2	0.0	0.2	1.6	6.0	N.
January.....	33	52	70	23	-10	39	26	0.6	2	0.1	0.2	4.7	12.0	SW.
February.....	33	45	75	18	-25	40	22	0.5	2	0.1	0.3	0.2	0.5	N.
Winter mean.....	34	48	.....	21	.....	.....	.....	1.8	6	0.2	0.7	6.5	.....	N.
March.....	45	62	90	32	-12	48	43	0.7	4	0.4	0.5	1.7	4.0	N.
April.....	58	71	92	42	21	66	56	2.4	6	3.6	0.2	0.6	2.0	SE.
May.....	67	80	107	53	35	72	63	3.4	7	2.8	1.4	0.0	0.0	SE.
Spring mean.....	57	71	.....	42	.....	.....	.....	6.5	17	6.8	2.1	2.3	.....	S.
June.....	76	88	112	61	39	81	68	2.2	7	0.4	4.3	0.0	0.0	SE.
July.....	80	94	109	67	50	85	78	2.8	6	1.4	5.8	0.0	0.0	SE.
August.....	82	96	110	66	50	85	79	2.0	4	0.5	1.1	0.0	0.0	SE.
Summer mean.....	79	93	.....	65	.....	.....	.....	7.0	17	2.3	11.2	0.0	0.0	S.
September.....	70	84	104	55	29	73	67	1.9	4	2.1	3.8	0.0	0.0	SE.
October.....	59	74	92	45	27	61	56	1.3	4	1.0	1.8	0.0	0.0	SE.
November.....	44	60	84	31	9	49	38	0.4	4	0.2	1.6	T.	T.	N.
Fall mean.....	58	73	.....	44	.....	.....	.....	3.6	12	3.3	7.2	T.	.....	S.
Annual mean.....	57	71	112	43	-25	.....	.....	18.9	52	12.6	21.2	8.8	12.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 102° or above.	Year.	Minimum below 0°.	Maximum 102° or above.
1899	Jan. 31; Feb. 7, 8, 11, 12.	June 19, July 23; Aug. 9-12, 17-19, 21.	1902	Jan. 26, 27, 30; Feb. 2, 4.	June 26; July 13, 14, 16; Aug. 2-4, 8, 9, 13, 15-20, 22-25, 29.
1900	Feb. 17; Dec. 31.....	Aug. 12-16, 21, 22, 27.	1903	Mar. 1.....	July 10, 14-16, 21-24; Aug. 5, 7.
1901	Jan. 12; Dec. 14.....	June 10, 28, 29; July 4, 9-11, 15-21; Aug. 24-28.			

OKLAHOMA.

Central Division: GRANT COUNTY. Station: JEFFERSON.

G. F. WALKER, M. D., Observer.

[Established by U. S. Weather Bureau in January, 1894. Latitude, 36° 44' N. Longitude, 97° 48' W. Elevation, 1,002 feet.]

This station is near the northern limits of the town of Jefferson. The surroundings are generally open, a few buildings being situated around the station. The general contour of the surrounding country is that of a wide prairie, nearly level in all directions.

The maximum and minimum thermometers are exposed in a cotton region shelter about 100 feet distant from the observer's residence, in the center of an open plot of ground, and are 5 feet above sod.

The rain gage is about 15 feet distant from the shelter, with no buildings or trees within its immediate vicinity. The top of the gage is 2 feet above the ground.

The mean temperature for this station has been obtained from the mean of the maximum and minimum temperature readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	37	49	81	22	- 8	46	33	0.8	2	0.3	2.8	1.6	5.0	N.
January.....	35	50	75	22	- 8	39	29	0.8	3	1.7	2.3	2.1	6.0	S.
February.....	34	49	90	21	-11	42	27	1.0	2	1.0	2.6	2.0	7.0	N.
Winter mean.....	35	49		22				2.6	7	3.0	7.7	5.7		N.
March.....	47	63	92	32	7	53	42	1.2	3	0.2	1.4	0.6	3.0	S.
April.....	59	73	95	44	20	62	54	2.7	5	4.0	1.6	0.0	0.0	S.
May.....	69	80	102	55	32	76	65	4.4	9	2.2	7.5	0.0	0.0	S.
Spring mean.....	58	72		44				8.3	17	6.4	10.5	0.6		S.
June.....	78	89	105	64	42	81	69	4.6	6	0.6	7.4	0.0	0.0	S.
July.....	81	94	111	64	50	86	76	2.8	5	1.1	3.3	0.0	0.0	S.
August.....	81	96	110	68	40	84	79	2.8	4	2.2	6.4	0.0	0.0	S.
Summer mean.....	80	93		65				10.2	15	3.9	17.1	0.0		S.
September.....	73	87	107	58	32	76	69	2.9	5	2.2	1.3	0.0	0.0	S.
October.....	59	81	102	48	22	65	47	2.1	4	2.0	1.2	0.0	0.0	S.
November.....	46	62	85	32	2	51	42	0.8	2	0.8	0.6	0.2	1.0	S.
Fall mean.....	59	77		46				5.8	11	5.0	3.1	0.2		S.
Annual mean.....	58	73	111	44	-11			26.9	50	18.3	38.4	6.5	7.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1897	Jan. 27.....	June 21, 22, 24, 25; July 6-9, 14, 22-31; Aug. 1-5, 19, 20, 25, 26, 29.	1900	Feb. 17.....	June 27, 29, 30; July 10, 11, 22, 23; Aug. 12-23, 26; Sept. 2, 6-8.
1898	None.....	June 25; Aug. 21, 23, 24, 28, 29; Sept. 16, 24-27; Oct. 2-4.	1901	None.....	June 20-22, 24-30; July 1-29; Aug. 3, 27, 28.
1899	Jan. 28, 30, 31; Feb. 7-13.	July 4-6.	1902	Jan. 26, 27, 30; Feb. 2, 4.	July 15; Aug. 2-4, 7, 13-18, 22-26, 30.
			1903	Feb. 17, 18.....	July 15, 16, 20-23; Aug. 7, 15, 25.

OKLAHOMA.

Central Division: PAYNE COUNTY. Station: STILLWATER.

J. C. WOODWORTH, Observer.

[Established by U. S. Weather Bureau in January, 1893. Latitude, 36° 10' N. Longitude, 97° 5' W. Elevation, 880 feet.]

This station is located on the grounds of the Agricultural Experiment station, the surroundings being open in every direction. The general contour of the surrounding country partakes both of the nature of valley and prairie.

The maximum and minimum thermometers are exposed in a cotton region shelter 150 feet north of the library building, and are 5 feet above sod.

The rain gage is in an open lot 100 feet away from the nearest building, with top of gage 2 feet above the ground.

The mean temperature for this station has been obtained from the mean of the maximum and minimum readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.		Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	38	49	74	26	- 2	43	32	1.3	4	1.4	2.7	1.5	3.5	N.
January.....	33	49	81	27	- 8	42	34	1.1	3	0.6	3.5	1.2	4.0	N.
February.....	32	50	77	25	-17	44	28	1.0	5	0.6	3.0	1.1	1.0	N.
Winter mean.....	38	49		26				3.4	12	2.6	9.2	3.8		N.
March.....	50	63	90	37	11	53	46	2.6	5	3.0	2.8	0.4	1.0	S.
April.....	60	73	100	48	20	66	57	3.2	7	1.2	0.6	0.0	0.0	S.
May.....	68	79	97	58	29	74	64	5.8	12	4.7	8.6	0.0	0.0	S.
Spring mean.....	59	72		48				11.6	24	8.9	12.0	0.4		S.
June.....	76	87	103	65	44	80	69	3.1	6	0.8	4.7	0.0	0.0	S.
July.....	80	92	106	69	51	86	78	3.1	6	1.5	6.4	0.0	0.0	S.
August.....	81	94	107	68	53	85	77	2.5	5	1.9	2.9	0.0	0.0	S.
Summer mean.....	79	91		67				8.7	17	4.2	14.0	0.0		S.
September.....	73	86	103	60	36	78	66	3.3	5	1.1	2.7	0.0	0.0	S.
October.....	62	75	99	49	26	67	55	2.5	5	2.1	4.2	0.0	0.0	S.
November.....	49	60	84	37	7	54	45	2.0	6	1.0	0.7	T.	0.3	S.
Fall mean.....	61	74		49				7.8	16	4.2	7.6	T.		S.
Annual mean.....	59	71	107	47	17			31.5	69	19.9	42.8	4.2	4.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-25; Dec. 28.	June 29, 30; July 1, 3, 24, 25, 28; Aug. 12-15, 18, 19.	1898	None	None.
1895	Record incomplete	June 24, 25; July 29; Sept. 6, 12, 13, 15-17.	1899	Jan. 31; Feb. 11-13.	Aug. 4, 7-13, 19-24; Sept. 5, 6.
1896	None	June 15; July 3, 7-9, 14-18, 20-22; Sept. 7, 8, 16.	1900	None	Aug. 21, 27.
1897	.....do.....	July 14, 24, 25; Aug. 4.	1901	Dec. 14, 15.	July 4-6, 7-25, 29; Aug. 3, 4, 24-29.
			1902	None	Aug. 2-5, 15-18, 20, 22-26, 31.
			1903	.....do.....	July 22, 23.

OKLAHOMA.

Western Division: CUSTER COUNTY. Station: ARAPAHO.

EUGENE FORBES, Observer.

[Established by the U. S. Weather Bureau in January, 1894. Latitude, 35° 30' N. Longitude, 98° 55' W. Elevation, 1,560 feet.]

This station is located in the western portion of the town of Arapaho, with the surroundings open. The general contour of the surrounding country is that of a high, upland prairie, with ground sloping rapidly eastward and northward to the valley of the Washita. The station location being on the ridge and the timber along the river, there is no obstruction to the air circulation in any direction.

The maximum and minimum thermometers are exposed in a cotton region shelter 50 feet distant from the residence of the observer. The instruments are 3½ feet above sod.

The rain gage is 50 feet distant from the nearest building. The top of the gage is 2 feet above the ground.

The mean temperatures of this station for the entire period have been obtained from the mean of the maximum and minimum temperature readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.	38	51	74	24	-10	43	33	0.9	3	0.1	2.1	1.0	3.0	N.
January.	36	49	77	24	-10	41	31	0.7	4	0.2	0.9	2.2	8.0	N.
February.	35	49	77	24	-14	43	26	0.8	3	0.5	2.6	1.0	3.0	N.
Winter mean.	36	50		24				2.4	10	0.8	5.6	4.2		N.
March.	49	64	92	35	7	52	46	1.2	4	0.7	1.8	0.4	2.0	N.
April.	59	75	98	45	22	65	57	2.8	7	1.5	1.4	T.	T.	S.
May.	70	83	108	56	32	76	64	6.0	9	9.2	6.4	0.0	0.0	S.
Spring mean.	59	74		45				10.0	20	11.4	9.6	0.4		S.
June.	77	90	106	63	43	80	70	3.3	7	T.	5.6	0.0	0.0	S.
July.	81	95	111	67	54	86	78	3.8	7	2.1	9.8	0.0	0.0	S.
August.	82	97	110	67	64	87	78	1.5	6	0.2	1.2	0.0	0.0	S.
Summer mean.	80	94		66				8.6	20	2.3	16.6	0.0		S.
September.	73	88	107	59	35	76	72	3.1	6	0.7	2.0	0.0	0.0	S.
October.	62	76	98	48	22	66	55	1.9	6	0.3	0.8	0.0	0.0	S.
November.	48	61	86	34	6	53	44	1.2	4	0.3	1.0	0.4	3.0	S.
Fall mean.	61	75		47				6.2	16	1.3	3.8	0.4		S.
Annual mean.	59	73	111	46	-14			27.2	66	25.8	35.6	5.0	8.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24; Dec. 28.	June 27; July 1, 23-26, 28; Aug. 15, 19, 20; Sept. 3-7.	1899	Jan. 31; Feb. 7, 11-13.	June 25, 27; Aug. 1, 3, 4-23, 25-31; Sept. 1, 5-7.
1895	Jan. 29, 31; Feb. 2, 4, 7, 8, 16.	June 24; July 6, 7; Aug. 14; Sept. 4, 5, 12-17.	1900	None.	June 17, 26, 27, 29; Aug. 15, 20-22; Sept. 6
1896	None.	May 25-30; June 4, 7, 8, 14-17, 19, 20, 23, 24; July 2-4, 27-30; Aug. 10-11, 14-21, 31; Sept. 7-9.	1901	Dec. 14, 15.	June 20, 21, 25, 27; July 1-3, 5-23, 25-30. Aug. 1-7, 9-17, 21-23, 25-29.
1897	do.	June 22, 23; July 3-9, 14, 22-31; Aug. 1, 2, 4-6, 25, 26, 29; Sept. 1, 5.	1902	Jan. 30; Feb. 1, 3, 4, 8.	June 14, 24, 26; July 1, 2, 6, 8, 15, 16; Aug. 1-21, 25-31.
1898	do.	June 25, 26; July 7, 19, 23, 28, 30; Aug. 17, 19; Sept. 4, 15, 16.	1903	None.	July 10-12, 14-24; Aug. 5, 7.

OKLAHOMA.

Central Division: KINGFISHER COUNTY. Station: KINGFISHER.

J. C. CROSS, Observer.

[Established by the U. S. Weather Bureau in April, 1897. Latitude, 35° 50' N. Longitude, 97° 56' W. Elevation, 1,046 feet.]

This station is near the central portion of the town of Kingfisher. The general contour of the surrounding country is that of a rolling prairie, sloping to the eastward and northward, with no marked elevation within several miles.

The maximum and minimum thermometers are exposed in a cotton region shelter 40 feet to the westward of the residence of the observer, and are open to the prevailing southerly winds. The instruments are 5 feet above sod.

The rain gage is in an open lot 50 feet away from the nearest building, with the top of the gage 2 feet above ground.

The mean temperature for this station has been obtained from the mean of the maximum and minimum temperature readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1897, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	38	50	76	27	- 3	40	35	0.9	3	T.	1.4	1.3	3.0	N.
January.....	39	51	75	27	- 2	42	36	0.8	3	0.2	0.2	1.7	2.0	N.
February.....	38	49	76	24	-15	45	28	1.7	3	4.0	T.	2.6	9.0	N.
Winter mean.....	38	50	.....	26	.....	.....	.....	3.4	9	4.2	1.6	5.6	.....	N.
March.....	50	64	92	36	10	51	48	2.6	5	2.8	5.9	0.5	3.0	S.
April.....	60	73	91	48	22	62	58	2.8	6	0.6	2.4	T.	T.	S.
May.....	68	79	91	57	28	70	66	7.4	9	7.3	14.6	0.0	0.0	S.
Spring mean.....	59	72	.....	47	.....	.....	.....	12.8	20	10.7	22.9	0.5	.....	S.
June.....	77	88	103	65	46	79	71	2.6	5	1.8	1.2	0.0	0.0	S.
July.....	82	94	107	69	55	86	80	3.2	5	1.5	1.9	0.0	0.0	S.
August.....	83	96	109	69	53	87	79	2.5	4	1.6	2.0	0.0	0.0	S.
Summer mean.....	81	93	.....	68	.....	.....	.....	8.3	14	4.9	5.1	0.0	.....	S.
September.....	73	87	102	60	39	76	70	4.2	5	1.8	6.8	0.0	0.0	S.
October.....	64	78	101	51	22	67	59	2.7	3	1.2	2.9	0.0	0.0	S.
November.....	50	62	90	37	11	53	47	1.7	3	0.8	3.3	T.	T.	S.
Fall mean.....	62	76	.....	49	.....	.....	.....	8.6	11	3.8	13.0	T.	.....	S.
Annual mean.....	60	73	109	48	-15	.....	.....	33.1	54	23.6	42.6	6.1	9.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD APRIL 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above	Year.	Minimum below 10°.	Maximum 100° or above.
1897	Dec. 3, 4.....	June 21, 22; July 1, 6-9, 14, 22-31; Aug. 1, 2, 4, 25, 26; Sept. 4, 5.	1901	Jan. 1, 2; Mar. 6; Dec. 14, 15, 17, 20.	June 18; July 2-10, 12-23, 29; Aug. 2, 3, 9, 17, 21, 23-28.
1898	Déc. 10, 14, 31.....	July 19, 22, 28, 29; Aug. 16, 18-20, 23; Sept. 15, 25, 26; Oct. 2-4.	1902	Jan. 26, 27, 30; Feb. 3-5, 10.	Aug. 2-5, 14-18, 20, 22-26, 29-31.
1899	Jan. 1, 29-31; Feb. 1, 7-13, 23.	July 4-13, 16, 18-23, 26-30; Aug. 4-6.	1903	Feb. 17, 19; Dec. 13, 15.	July 15-17, 22-24; Aug. 5, 16.
1900	Feb. 16-18; Dec. 31...	June 26, 27; Aug. 15, 26, 27; Sept. 6, 7.			

OKLAHOMA.

Central Division: OKLAHOMA COUNTY. Station: OKLAHOMA CITY.

C. M. STRONG, Section Director.

[Established by the U. S. Signal Service on November 1, 1890. Latitude 35° 26' N. Longitude, 97° 43' W. Elevation 1,196 feet.]

This station is located within the business section of the city, on the southeast corner of Grand avenue and Broadway street, in the Culbertson building, fifth floor.

The ground slopes from north to south, rising gradually northward, for 16 blocks, to an elevation of probably 60 feet above the elevation of the ground at the station location. To the southward, westward, and eastward the ground is nearly level for a mile in each direction.

The thermometers are exposed in the standard shelter on the roof of the building 79 feet above the ground and 10 feet above the roof. The rain gage and snow gage are located on the roof of the building 71 feet above the ground and 3.5 feet above the roof. The wind vane and anemometer are located on the roof of the building 88 and 86 feet, respectively, above the ground and 18 and 16 feet, respectively, above the roof.

This station was established on November 1, 1890, in the Opera House building at the southeast corner of Grand avenue and Robinson street and removed to the present location on July 1, 1902.

Sunshine data are from 1898-1903. Remainder of tabulated data is from the full period of observation—eleven years—November 1, 1890, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine	Direction of prevailing wind.		
	Mean.	Mean of the max. ima.	Absolute max. num.	Mean of the min. ima.	Absolute min. num.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		Average hours.	Percentage possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	40	50	75	30	- 2	45	35	1.9	6	1.3	1.7	1.7	5.5	80	1.75	70	2.22	186	61	N. N. E.
January.....	37	47	78	28	- 11	41	33	1.3	6	0.5	0.7	4.0	10.0	80	1.61	67	1.91	185	59	N. N. E.
February.....	37	48	80	26	- 17	44	27	1.0	5	0.6	0.5	1.2	3.0	80	1.63	64	2.05	188	62	N. N. E.
Winter mean....	38	48	78	28	- 10	43	31	4.2	17	2.4	2.9	6.9		80	1.66	67	2.06	186	61	N. N. E.
March.....	49	60	90	37	9	53	44	2.3	8	0.4	0.9	0.5	4.5	78	2.23	58	2.63	255	63	S. S. W.
April.....	61	72	95	50	22	66	58	2.6	8	1.3	4.8	T.	T.	77	3.38	53	3.60	256	65	S. S. W.
May.....	68	77	94	58	35	73	64	6.4	11	3.6	9.6	0.0	0.0	83	4.94	64	5.78	271	64	S. S. W.
Spring mean....	59	70	90	48	29	64	55	11.3	27	5.3	15.3	0.5		79	3.52	58	4.00	254	64	S. S. W.
June.....	76	86	101	66	48	79	70	2.5	7	1.6	4.9	0.0	0.0	83	6.40	60	6.39	324	74	S. S. W.
July.....	80	90	104	70	56	85	76	3.5	7	T.	6.2	0.0	0.0	82	6.99	57	7.02	341	78	S. S. W.
August.....	80	91	104	69	49	84	75	2.7	7	3.0	0.9	0.0	0.0	82	6.51	52	6.29	348	80	S. S. W.
Summer mean....	78	89	101	68	51	81	74	8.7	21	4.6	12.0	0.0		82	6.63	56	6.63	339	78	S. S. W.
September.....	73	84	101	62	36	76	67	2.7	6	0.7	1.4	0.0	0.0	80	5.26	56	5.54	270	72	S. S. W.
October.....	62	74	97	51	27	66	56	2.1	6	1.3	4.2	0.0	0.0	78	3.30	55	3.42	248	71	S. S. W.
November.....	49	59	86	38	9	53	45	2.7	6	1.4	7.8	0.3	2.5	78	2.24	62	2.60	179	58	S. S. W.
Fall mean.....	61	72	90	50	27	64	54	7.5	18	3.4	13.4	0.3		79	3.63	58	3.85	232	67	S. S. W.
Annual mean....	59	70	90	49	- 17	64	55	31.7	83	15.7	43.6	7.7	10.0	80	3.86	60	4.14	253	67	S. S. W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 23-26; Feb. 11, 12; Nov. 17; Dec. 27, 28, 31.	July 1-3; Aug. 15; Sept. 7, 8.	1898	Dec. 10, 14, 23.....	None.
1895	Jan. 13, 26, 28-31; Feb. 1, 2, 4-9, 11-13, 16.	July 7.	1899	Jan. 1, 28-31; Feb. 4-13, 23.	Aug. 19-22.
1896	None.	June 15; July 27, 31; Aug. 1-3, 6-8, 15-21; Sept. 7.	1900	Feb. 16, 17; Dec. 31...	None.
1897	Jan. 24-28; Dec. 3, 4, 17.	July 14.	1901	Jan. 1; Dec. 13-15, 17, 20.	July 5, 14, 15, 19; Aug. 25-27.
			1902	Jan. 26, 27, 30; Feb. 2, 4.	Aug. 2, 3, 5, 16, 26, 30.
			1903	Feb. 15-19.....	July 22-24.

OKLAHOMA.

Western Division: GREER COUNTY. Station: MANGUM.

J. O. MCCOLLISTER, Observer.

[Established by the U. S. Weather Bureau in January, 1893. Latitude, 34° 40' N. Longitude, 98° 35' W. Elevation, 1,585 feet.]

This station is near the southern limits of the town of Mangum, with the surroundings generally open, a few buildings being in the immediate vicinity. The general contour of the country is that of a rolling upland sloping to the southward and rising to the eastward and westward to a crest of probably 100 feet higher elevation within a distance of 2 miles. About 12 miles eastward and 16 miles southeastward the Wichita Mountain range rises to an elevation of from 800 to 1,500 feet above the country.

The maximum and minimum thermometers are exposed in a cotton-region shelter 35 feet northwest of the residence of the observer and are open to the prevailing southerly breeze. The instruments are 5 feet above the sod.

The rain gage is in an open lot 15 feet west of the shelter and 60 feet distant from the nearest building. The top of the gage is 2 feet above ground.

The mean temperature for this station has been obtained from the mean of the maximum and minimum temperature readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	57	83	28	1	48	35	1.0	2	0.7	0.9	1.0	3.0	N.
January.....	41	54	79	27	-5	44	36	0.7	2	0.2	0.4	0.8	3.6	N.
February.....	40	53	82	26	-17	48	30	1.3	4	0.8	3.1	1.9	5.0	N.
Winter mean.....	41	55	.....	27	.....	.....	.....	3.0	8	1.7	4.4	3.7	.....	N.
March.....	51	66	94	37	10	56	46	1.0	2	0.6	0.0	0.3	3.0	SE.
April.....	62	77	102	48	22	67	58	2.1	4	0.3	0.7	0.0	0.0	S.
May.....	70	82	104	58	35	73	67	4.6	7	1.6	1.1	0.0	0.0	S.
Spring mean.....	61	75	.....	48	.....	.....	.....	7.7	13	2.5	1.8	0.3	.....	S.
June.....	78	90	106	65	42	82	73	4.1	5	1.3	11.5	0.0	0.0	S.
July.....	82	95	107	69	54	86	77	2.9	4	1.0	6.3	0.0	0.0	S.
August.....	82	96	114	68	52	88	76	2.2	4	3.1	2.8	0.0	0.0	SE.
Summer mean.....	81	94	.....	67	.....	.....	.....	9.2	13	5.4	20.6	0.0	.....	S.
September.....	74	88	108	60	35	76	71	2.4	4	1.6	T.	0.0	0.0	S.
October.....	63	79	100	48	22	68	57	1.6	3	0.1	3.7	0.0	0.0	S.
November.....	51	65	90	36	9	54	46	1.5	2	0.1	2.3	0.2	2.0	N.
Fall mean.....	63	77	.....	48	.....	.....	.....	5.5	9	1.8	6.0	0.2	.....	S.
Annual mean.....	61	75	114	47	-17	.....	.....	25.4	43	11.4	32.8	4.2	5.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 28, 29, 31.....	June 26-30; July 1-4, 15, 16, 22-31; Aug. 13, 20, 21; Sept. 4-8.	1899	Jan. 1, 29, 31; Feb. 1, 4-13; Mar. 26.	Aug. 9-12, 19-21, 23, 25-28.
1895	Jan. 8, 26, 29-31; Feb. 1-9, 11, 12, 15, 16.	July 6, 7; Aug. 2, 14, 19; Sept. 4-6, 12, 13, 15, 16.	1900	Feb. 8, 9, 17, 18.....	June 7, 27; July, Aug., and Sept. report missing.
1896	None.....	May 26, 27, 29; June 4, 7-9, 14, 15, 19-21; July 3, 4; Aug. 1-3, 6-8, 10, 11, 13, 15-21; Sept. 7, 8.	1901	None.....	June 20; July 4-6, 9, 14-22, 31; Aug. 3, 9, 17, 18, 23-29.
1897	Dec. 3, 4, 17.....	June 22-25; July 4, 8, 13, 30, 31; Aug. 3-5, 25; Sept. 5.	1902	Jan. 25, 26; Feb. 1.....	June 13, 14, 18, 19, 24-26; July 2, 14-16, 29-31; Aug. 1-5, 7-9, 12-26, 29, 30.
1898	Jan. 1; Dec. 9, 10, 31..	July 18, 19, 23, 27, 28; Aug. 18-20; Sept. 14-16.	1903	None.....	June 19; July 11, 12, 15-18, 21-26; Aug. 2, 3-8, 15, 16; Sept. 8.

OKLAHOMA.

Western Division: COMANCHE COUNTY. Station: FORT SILL.

POST SURGEON, U. S. A., Observer.

[Established by U. S. Weather Bureau in January, 1893. Latitude, 34° 40' N. Longitude, 98° 25' W. Elevation, 1,200 feet.]

This station is located within the limits of the Fort Sill reservation, 120 feet from the post hospital, the hospital and instruments being located on the westward slope of a slight elevation. The general contour of the surrounding country is that of a rolling prairie, rising abruptly into the Wichita Mountains, about 8 miles to the westward, which range from 800 to 1,500 feet higher than the adjoining prairie.

The maximum and minimum thermometers are exposed in a latticed-box shelter, similar in design to the cotton-region shelter, 120 feet from the nearest building, and 4 feet above sod. The rain gage is located in the open space adjacent to shelter and is 4 feet above ground.

The mean temperature for this station has been obtained from the mean of the maxima and minima for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with .001 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	40	53	79	28	1	45	35	1.6	4	0.8	2.4	1.2	3.5	N.
January.....	39	51	82	27	- 6	43	35	1.3	5	0.5	0.2	1.6	4.2	N.
February.....	39	52	79	26	-14	49	29	1.0	3	1.0	0.2	1.3	3.0	N.
Winter mean.....	39	52		27				3.9	12	2.3	2.8	4.1		N.
March.....	51	64	91	38	12	54	48	1.6	4	T.	T.	T.	0.1	S.
April.....	62	76	98	49	27	66	59	3.0	6	2.4	2.6	0.0	0.0	S.
May.....	70	81	102	58	30	76	66	5.2	8	5.0	6.7	0.0	0.0	S.
Spring mean.....	61	74		48				9.8	18	7.4	9.3	T.		S.
June.....	77	89	107	65	46	81	71	2.6	6	1.3	6.6	0.0	0.0	S.
July.....	81	94	105	68	55	85	78	3.3	7	1.6	14.0	0.0	0.0	S.
August.....	81	95	109	68	50	85	78	2.5	6	0.6	0.0	0.0	0.0	S.
Summer mean.....	80	93		67				8.4	19	3.5	20.6	0.0		S.
September.....	74	87	105	61	40	78	70	3.2	3	1.4	0.8	0.0	0.0	S.
October.....	63	77	99	48	27	69	57	2.5	4	0.3	5.1	0.0	0.0	S.
November.....	50	63	89	36	6	54	46	2.3	3	1.3	7.9	0.2	1.7	N.
Fall mean.....	62	76		48				8.0	10	3.0	13.8	0.2		S.
Annual mean.....	61	74	109	48	- 14			30.1	50	16.2	46.5	4.3	4.2	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 12; Dec. 28-29	June 26, 27, 30; July 1-5, 25; Sept. 4, 6-8	1898	Dec. 9, 10, 13, 14, 30, 31.	July 23, 27-30; Aug. 23.
1895	Jan. 29-31; Feb. 2, 4, 7, 8, 11, 12, 16, 17.	July 7, Aug. 14, Sept. 4-6, 13	1899	Jan. 1, 28-31; Feb. 4-13, 23.	Aug. 19-30.
1896	Jan. 4.....	May 20, 27, 30, June 7-9, 15, 20, 22-24; July 1-4, 21, 23-30, Aug. 1-11, 14-22, Sept. 5, 8, 9.	1900	Jan. 28, Feb. 16-18, 27; Dec. 31.	June 27; Aug. 22, 24-27; Sept. 6.
1897	Jan. 25-27; Dec. 3, 4, 22.	July 3, 7, 8, 14, 25, 31; Aug. 1, 4, 5, 7, 25.	1901	Jan. 1; Feb. 23; Dec. 14, 15, 20.	July 3-8, 13-15, 17-21; Aug. 3, 4, 9, 17, 24-29.
			1902	Jan. 26, 27; Feb. 2, 4....	Aug. 2, 3-6, 8-10, 13-18, 20-27, 29-31.
			1903	Feb. 16.....	July 15-17, 21-25; Aug. 7, 8, 17, 27.

INDIAN TERRITORY.

Central Division: CHICKASAW NATION. Station: HEALDTON.

C. H. HEALD, Observer.

[Established by U. S. Weather Bureau in January, 1894. Longitude, 34° 15' N. Longitude 97° 25' W. Elevation, 900 feet.]

This station is near the eastern limits of the village of Healdton, and the surroundings are open in all directions. The residence and instruments are located on the western slope of a low hill, which is covered with scrub oak and underbrush to within about 200 feet of the dwelling. To the westward, southward, and northward the ground is cleared.

The maximum and minimum thermometers are exposed in a cotton-region shelter, 25 feet to the westward of the residence of the observer. The height of the instruments above the sod is 5 feet. The rain gage is located 15 feet west of the shelter, with top of gage 3 feet above ground.

The mean temperature for this station has been obtained from the mean of the maximum and minimum readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	56	80	29	1	47	37	2.7	4	2.6	3.9	1.1	5.0	S.
January.....	42	54	78	30	0	46	37	1.5	4	0.7	T.	1.4	6.0	N.
February.....	41	54	82	29	-14	49	32	1.4	3	6.1	0.2	1.9	6.0	N.
Winter mean.....	42	55		29				5.6	11	9.4	4.1	4.4		N.
March.....	53	66	89	41	8	56	51	2.8	5	2.1	3.7	0.1	1.0	S.
April.....	61	77	96	51	29	69	60	3.2	5	0.3	3.5	0.0	0.0	S.
May.....	71	82	102	60	24	75	68	5.7	9	2.6	13.3	0.0	0.0	S.
Spring mean.....	63	75		51				11.7	19	5.0	20.5	0.1		S.
June.....	79	90	110	67	38	82	71	2.2	5	1.8	0.6	0.0	0.0	S.
July.....	82	95	110	70	52	86	81	3.6	6	0.5	3.0	0.0	0.0	S.
August.....	84	97	115	70	54	89	80	2.2	4	1.4	0.2	0.0	0.0	S.
Summer mean.....	82	94		69				8.0	15	3.7	3.8	0.0		S.
September.....	76	90	106	62	35	80	71	2.2	3	1.8	7.6	0.0	0.0	S.
October.....	64	79	101	50	25	68	60	2.7	3	2.5	3.2	0.0	0.0	S.
November.....	54	66	88	39	8	64	50	2.5	4	0.0	11.5	0.8	4.0	S.
Fall mean.....	65	78		50				7.4	10	4.3	22.3	0.8		S.
Annual mean.....	63	76	115	50	-14			32.7	55	22.4	50.7	5.3	6.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24; Dec. 28.....	June 29, 30; July 1-6, 25, 29; Aug. 1, 18, 21; Sept. 4-9.	1899	Jan. 1, 31; Feb. 7-13.	June 24; July 31; Aug. 1-31; Sept. 3-7, 15.
1895	Jan. 9, 13, 29-31; Feb. 1, 2, 7, 8.	June 25; July 7, 20; Aug. 6, 11, 14, 18-20, 26-29; Sept. 9-17.	1900	Jan. 29; Feb. 17, 18.	June 17, 26-28; July 8; Aug. 21, 22, 24, 26, 27; Sept. 3, 7.
1896	Jan. 3; Dec. 1.....	May 30, 31; June 7, 8, 15, 20, 22-24; July 2-4, 23-26, 29-31; Aug. 1-11, 13-22; Sept. 3, 4, 7, 8, 10, 12, 16, 17.	1901	Feb. 23; Mar. 6; Dec. 14, 15.	June 20; July 1-10, 12-23; Aug. 3, 4, 9, 14-17, 24-29.
1897	Jan. 25-29; Dec. 22.....	July 1, 6-8, 10, 14; Aug. 4.	1902	Jan. 26, 27; Feb. 2, 10, 21.	June 15, 18-20, 24, 25, 30; July 2, 15-18; Aug. 2-5, 8, 9, 12-26, 28-31; Sept. 8.
1898	Dec. 10, 11, 14.....	July 7, 8, 19, 22, 24, 27-31; Aug. 15, 16, 18, 19, 22; Sept. 15, 16, 25, 26; Oct. 23.	1903	Jan. 12, 13; Feb. 16-19; Nov. 18; Dec. 6.	July 15, 21-24; Aug. 7, 8, 16, 27; Sept. 9.

INDIAN TERRITORY.

Eastern Division: CHOCTAW NATION. Station: LEHIGH.

T. P. PETTES, Observer.

[Established by U. S. Weather Bureau in January 1893. Latitude, 34° 30' N. Longitude, 96° 06' W. Elevation, 594 feet.]

This station was situated on the edge of the town of Lehigh, and the surroundings are open in every direction. The general contour of the surrounding country is that of a wide, rolling prairie, with creeks about 6 miles apart, and bottoms about 2 miles in width. The ridges are sparsely covered with timber.

The maximum and minimum thermometers were exposed in a cotton region shelter, about 100 feet from the residence of the observer, in the center of a grassy plot of ground, and 8 feet above sod.

The rain gage was near the shelter, 100 feet distant from any buildings or trees, and 3 feet above ground.

The mean temperature for this station was obtained from the mean of the maximum and minimum readings for the entire period.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO AUGUST 31, 1901.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	43	56	80	31	5	46	37	2.2	3	0.8	1.7	0.6	3.9	N.
January.....	41	53	79	30	-4	47	37	2.4	4	1.3	3.1	2.7	11.0	S.
February.....	41	53	83	29	-15	48	31	1.5	3	1.5	1.6	0.9	5.0	N.
Winter mean.....	42	54		30				6.1	10	3.6	6.4	4.2		N.
March.....	53	65	91	41	15	56	51	3.5	5	1.1	0.3	T.	T.	S.
April.....	63	76	94	51	28	67	60	3.4	6	2.9	1.9	0.0	0.0	S.
May.....	71	82	98	59	35	76	68	4.7	6	1.9	0.7	0.0	0.0	S.
Spring mean.....	62	74		50				11.6	17	5.9	14.9	T.		S.
June.....	78	90	104	66	48	81	76	3.0	6	2.2	2.4	0.0	0.0	S.
July.....	83	95	112	70	54	86	80	4.2	6	1.7	3.6	0.0	0.0	S.
August.....	82	96	111	68	50	88	78	2.6	4	2.4	0.2	0.0	0.0	S.
Summer mean.....	81	94		68				9.8	16	6.3	6.2	0.0		S.
September.....	77	91	108	62	34	80	74	2.7	4	1.6	1.6	0.0	0.0	S.
October.....	64	79	100	49	21	68	59	2.6	3	2.5	4.4	0.0	0.0	S.
November.....	52	65	86	40	13	56	47	2.3	3	2.6	5.8	T.	T.	S.
Fall mean.....	64	78		50				7.6	10	6.7	11.8	T.		S.
Annual mean.....	62	75	112	50	-15			35.1	53	22.5	39.3	4.2	11.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO AUGUST 31, 1901.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24-26; Dec. 28....	June 29-30; July 1-4, 15, 24, 25, 28, 29; Aug. 10, 12, 14, 15, 17-19, 28, 29.	1898	Dec. 10.....	July 22, 23; Aug. 22, 23.
1895	Jan. 13, 29-31; Feb. 7, 8, 14.	Sept. 10-16.	1899	Jan. 1, 29, 31.....	Aug. 1-13, 15, 16, 19-24, 26-29; Sept. 3-8.
1896	Jan. 4.....	June 8, 16, 20, 22-25, 27; July 1-4, 18-31; Aug. 1-22; Sept. 1-17.	1900	Feb. 17.....	June 17, 26, 27; Aug. 16, 21, 22, 26, 27; Sept. 7, 15.
1897	Jan. 24-29.....	July 1, 2, 6-10, 14, 28, 31; Aug. 1, 3-5, 7, 21, 25-31; Sept. 3-5.	1901		July 2-24.

ARKANSAS.

By EDWARD B. RICHARDS,
Section Director.

ARKANSAS.

Arkansas, with an area of 53,045 square miles, is 240 miles in length, north and south, with an average breadth, east and west, of 228 miles. The contour of the State is generally rolling, with a gradual slope from the extreme southeastern point, where the elevation is about 200 feet above sea level, to the Ozark Mountains in the northwest, where the elevation reaches a maximum of 2,800 feet. This range in elevation, together with the range in latitude, causes the varied climatic features of the State which are met in passing from the south to the north. In the southeastern portion spring commences about three weeks earlier than in the northern portion, and the growing season is also relatively longer in the first-named section. Also, owing to the differences in elevation and latitude and the many sheltered valleys, there is a considerable range of temperature at any given time.

The mean temperature for the year is 60.8°; for the winter months, 41.6°; for the summer months, 78.9°; and for the fall months, 61.9°. The highest maximum temperature ever recorded was 112° and occurred on August 12 and 23, 1899. The lowest minimum temperature of which there is record was 25° below zero in February, 1899. The average number of days with temperatures above 90° is 66, and the average number of days with temperatures below 32° is 62. The average date of the first killing frost in the fall is October 31, and the average date of the last killing frost in spring is March 30. The earliest killing frost of which there is authentic record occurred in the extreme northern portion of the State on September 29, and the latest known killing frost occurred also in the northern portion on May 2. There is, therefore, on the average, seven months without killing frost, with an extreme possibility of but five months intervening between the last and first.

The annual average of precipitation is abundant, being 46.7 inches. It is distributed as follows: For the winter months, 11.4 inches; for the spring months, 14.5 inches; for the summer months, 10.5 inches; and for the fall months, 10.2 inches. The average number of days with 0.01 inch or more of precipitation is 87. The average number of days with thunderstorms is large, being 40.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Arkansas (see Pine Bluff)		Southeast		Lee (see Helena)		Southeast	
Ashley (see Warren)		do.		Lincoln (see Pine Bluff)		do.	
Baxter (see Dodd City)		Northwest		Little River (see Dallas)		Southwest	
Benton (see Fayetteville)		do.		Logan (see Fort Smith)		Northwest	
Boone (see Dodd City)		do.		Lonoke (see Little Rock)		Central	
Bradley	Warren	Southeast	468	Madison (see Fayetteville)		Northwest	
Calhoun (see Camden)		do.		Marion	Dodd City	do.	459
Carroll (see Fayetteville)		Northwest		Miller (see Camden)		Southwest	
Chicot (see Warren)		Southeast		Mississippi (see Pocahontas)		Northwest	
Clark (see Camden)		Southwest		Monroe (see Helena)		Southeast	
Clay (see Pocahontas)		Northwest		Montgomery (see Dallas)		Southwest	
Cleburne (see Conway)		Central		Nevada (see Camden)		do.	
Cleveland (see Warren)		Southeast		Newton (see Dodd City)		Northwest	
Columbia (see Camden)		Southwest		Ouachita	Camden	Southwest	467
Conway (see Conway)		Central		Perry (see Little Rock)		Central	
Craighead (see Pocahontas)		Northwest		Phillips	Helena	Southeast	464
Crawford (see Fort Smith)		Northwest		Pike (see Dallas)		Southwest	
Crittenden (see Helena)		Northwest		Poinsett (see Pocahontas)		Northwest	
Cross (see Helena)		do.		Polk	Dallas	Southwest	465
Dallas (see Camden)		Southwest		Pope (see Conway)		Northwest	
Desha (see Warren)		Southeast		Prairie (see Little Rock)		Central	
Drew (see Warren)		do.		Pulaski	Little Rock	do.	463
Faulkner	Conway	Central	462	Randolph	Pocahontas	Northwest	460
Franklin (see Fort Smith)		Northwest		Saline (see Little Rock)		Central	
Fulton (see Dodd City)		do.		Scott (see Dallas)		Northwest	
Garland (see Little Rock)		Central		Searcy (see Dodd City)		do.	
Grant (see Pine Bluff)		do.		Sebastian	Fort Smith	do.	461
Greene (see Pocahontas)		Northwest		Sevier (see Dallas)		Southwest	
Hempstead (see Camden)		Southwest		Sharp (see Pocahontas)		Northwest	
Hot Spring (see Little Rock)		Central		St. Francis (see Helena)		do.	
Howard (see Dallas)		Southwest		Stone (see Dodd City)		do.	
Independence (see Pocahontas)		Northwest		Union (see Camden)		Southwest	
Izard (see Pocahontas)		do.		Van Buren (see Conway)		Central	
Jackson (see Pocahontas)		do.		Washington	Fayetteville	Northwest	458
Jefferson	Pine Bluff	Central	466	White (see Conway)		Central	
Johnson (see Fort Smith)		Northwest		Woodruff (see Helena)		do.	
Lafayette (see Camden)		Southwest		Yell (see Dallas)		Northwest	
Lawrence (see Pocahontas)		Northwest					

STATE SUMMARY.

Station.	Num-ber.	Temperature.									
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Abso-lute maxi-mum.	Date.	Abso-lute mini-mum.	Date.	Average num-ber days with—		
									Maxi-mum above 50°.	Mini-mum below 32°.	
											° F.
Fayetteville.....	1	58	70	46	107	August, 1896.....	-24	February, 1899..	44	80	
Dodd City.....	2	59	72	46	110	July, 1901.....	-25	do.....	64	87	
Pocahontas.....	3	58	70	47	111	do.....	-22	do.....	50	80	
Fort Smith.....	4	61	71	50	107	August, 1896.....	-15	do.....	58	69	
Conway.....	5	61	75	50	112	August, 1899.....	-15	do.....	66	57	
Little Rock.....	6	62	71	53	106	do.....	-12	do.....	72	62	
Helena.....	7	62	74	52	109	August, 1896.....	-7	do.....	71	46	
Dallas.....	8	62	72	50	108	July, 1894.....	-15	do.....	57	57	
Pine Bluff.....	9	63	75	51	108	July, 1901.....	-5	do.....	81	52	
Camden.....	10	64	74	51	109	August, 1896.....	-10	do.....	71	48	
Warren.....	11	63	76	50	108	do.....	-10	do.....	80	53	

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Fayetteville.....	1	Oct. 19	Apr. 10	Sept. 29	Apr. 30	Inches 44.3	Inches 13.6	Inches 12.4	Inches 10.8	Inches 8.3
Dodd City.....	2	Oct. 18	Apr. 13	do.....	May 1	47.2	14.2	13.3	10.3	9.5
Pocahontas.....	3	Oct. 23	Apr. 3	Oct. 8	May 2	43.5	13.2	11.4	8.4	10.5
Fort Smith.....	4	Nov. 4	Mar. 24	Oct. 15	Apr. 6	41.8	12.7	11.2	9.5	8.4
Conway.....	5	Oct. 27	Mar. 23	Oct. 2	Apr. 12	45.4	13.3	10.5	9.7	11.9
Little Rock.....	6	Nov. 9	Mar. 21	Oct. 22	Apr. 14	49.6	14.5	11.2	10.5	13.4
Helena.....	7	Nov. 1	Mar. 25	Oct. 21	Apr. 6	55.2	16.0	11.6	11.5	16.1
Dallas.....	8	Nov. 4	Apr. 4	Oct. 7	May 1	51.0	16.8	13.3	10.1	10.8
Pine Bluff.....	9	Nov. 6	Mar. 27	Oct. 19	Apr. 19	48.8	13.8	10.8	10.0	14.2
Camden.....	10	Nov. 7	Mar. 24	Oct. 8	Apr. 12	49.2	14.3	10.8	10.2	13.9
Warren.....	11	Nov. 4	Mar. 30	Oct. 10	Apr. 8	49.0	14.2	9.4	11.3	14.1

ARKANSAS.

Northwestern Section: WASHINGTON COUNTY. Station: FAYETTEVILLE.

J. F. MOORE, Observer.

[Established 1881. Latitude, 36° 41' N. Longitude, 94° 7' W. Elevation, 1,451 feet.]

This station is located in a mountainous country covered with timber and has an elevation of 1,340 feet.

The maximum and minimum thermometers are exposed in a standard cotton region instrument shelter and are 6 feet above the ground. The shelter is located in the center of a large yard and is 65 feet east of the house and 40 feet northwest of a small barn. Weather Bureau thermometers are in use.

The rain gage is located in the yard 60 feet from the house and is free from the influence of trees or other obstructions. The gage is 3 feet above the ground.

The records of this station are incomplete and unsatisfactory from 1881 to 1891; from 1891 to 1903 the records are complete. The mean temperature and average precipitation are based on the records obtained from the establishment of the station in 1881 to and including 1903; the amounts for the driest and wettest years, and all other data, are based on records extending from 1891 to 1903, inclusive.

Mean temperatures were calculated from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wd.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	39	48	75	29	- 6	45	34	3.1	■	3.5	1.6	1.2	5.0	S.
January.....	36	48	73	26	-17	42	32	2.6	7	1.0	4.6	4.5	9.0	S.
February.....	39	49	75	27	-24	45	28	2.6	7	1.2	0.7	2.0	8.0	S.
Winter mean.....	38	48	.....	27	.....	.....	.....	8.3	20	5.7	6.9	7.7	.....	S.
March.....	48	60	86	36	■	52	41	3.9	9	3.9	15.1	1.0	2.0	S.
April.....	59	71	96	47	22	■	55	3.8	■	4.2	3.9	T.	T.	S.
May.....	67	78	92	55	33	72	63	5.9	10	1.3	10.4	0.0	0.0	S.
Spring mean.....	58	70	.....	46	.....	.....	.....	13.6	27	9.4	29.4	1.0	.....	S.
June.....	74	86	99	63	42	78	66	4.0	8	1.9	5.7	0.0	0.0	S.
July.....	78	90	106	69	50	83	73	4.5	7	1.5	7.1	0.0	0.0	S.
August.....	76	90	107	65	40	81	72	3.9	6	4.0	4.5	0.0	0.0	S.
Summer mean.....	76	89	.....	65	.....	.....	.....	12.4	21	7.4	17.3	0.0	.....	S.
September.....	71	84	100	58	32	75	64	3.4	6	0.5	4.5	0.0	0.0	S.
October.....	60	74	93	47	25	66	56	3.4	6	2.6	5.3	0.0	0.0	S.
November.....	48	60	80	36	10	53	44	3.2	6	3.3	2.6	T.	2.0	S.
Fall mean.....	60	73	.....	47	.....	.....	.....	10.0	18	6.4	12.4	T.	.....	S.
Annual mean.....	58	70	107	46	-24	.....	.....	44.3	86	28.9	66.0	8.7	9.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 12, 15; Dec. 27-29, 31.	July 12.	1900	Jan. 29, 31; Feb. 1, 16-18.	None.
1895	Jan. 12, 13, 26, 30, 31; Feb. 2, 4, 6, 8, 9, 13; Dec. 3.	Aug. 9.	1901	Mar. 6; Dec. 14, 15, 17-20.	July 4, 5, 7-24.
1896	Jan. 3, 4.	July 23-31; Aug. 1-3, 5-9, 14, 15, 21, 22.	1902	Jan. 26, 27; Feb. 2-4, 10; Dec. 26.	July 9, 15, 18; Aug. 2, 3, 5.
1897	Jan. 24-29; Dec. 4.	Aug. 3, 4; Sept. 3.	1903	Jan. 11, 12; Feb. 16, 17, 19.	None.
1898	Feb. 3; Dec. 4, 10, 13, 14.	None.			
1899	Jan. 1, 29, 31; Feb. 1, 5, 7-14, 23; Mar. 6.	Aug. 21, 22.			

ARKANSAS.

Northwestern Section: MARION COUNTY. Station: DODD CITY.

NEAL DODD, Observer.

[Established in 1882 at Keesee's Ferry, 8 miles northwest of Dodd City; removed to Dodd City December, 1902. Latitude, 36° 20' N. Longitude, 92° 45' W. Elevation, unknown.]

This station is located in a mountainous country which is covered with timber and has an elevation of 1,176 feet.

The thermometers are exposed in a standard cotton region instrument shelter and consist of Weather Bureau maximum and minimum thermometers, which are 3 feet above the ground. The instrument shelter is located in a small valley and is free from buildings or other obstructions.

The rain gage is 10 feet from the instrument shelter and is free from obstructions of any kind. The top of the gage is 3 feet above the ground.

The mean temperature, average precipitation, and amounts of wettest and driest years, are based on the entire period of observation. The mean maximum and mean minimum temperature, and all other data, are based on the records for the period 1891 to and including 1903.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	38	52	75	28	-4	55	29	3.2	8	3.6	4.5	1.4	5.3	NW.	
January.....	36	50	76	26	-13	46	24	2.7	7	1.1	2.6	2.7	6.0	NW.	
February.....	38	48	84	24	-25	50	27	3.6	7	1.4	8.2	3.2	6.5	NW.	
Winter mean.....	37	50		26				9.5	22	6.1	15.3	7.3		NW.	
March.....	48	62	91	36	7	55	45	4.4	10	4.4	3.0	0.9	2.0	NW.	
April.....	61	73	97	47	21	66	56	3.9	10	4.2	3.8	T.	0.2	SE.	
May.....	68	81	97	56	32	74	63	5.9	11	1.4	9.2	0.0	0.0	S.	
Spring mean.....	59	72		46				14.2	31	10.0	16.0	0.9		S.	
June.....	76	88	104	62	42	80	69	4.4	9	1.0	6.2	0.0	0.0	SE.	
July.....	80	92	110	66	50	84	75	4.6	8	1.6	11.6	0.0	0.0	SE.	
August.....	78	92	109	64	48	82	74	4.2	7	2.4	4.8	0.0	0.0	SE.	
Summer mean.....	78	91		64				13.2	24	5.0	22.6	0.0		SE.	
September.....	72	87	104	58	32	77	68	3.7	6	0.3	1.5	0.0	0.0	SE.	
October.....	60	76	98	45	21	67	54	3.2	5	0.7	18.1	0.0	0.0	S.	
November.....	48	62	83	34	8	53	43	3.4	6	2.3	5.8	T.	2.0	NW.	
Fall mean.....	60	75		46				10.3	17	3.3	25.4	T.		S.	
Annual mean.....	59	72	110	46	-25			47.2	94	24.4	79.3	8.2	6.5	SE. NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year	Minimum below 10°.	Maximum 100° or above.	Year	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 15; Dec. 28, 29, 31.	June 28-30; July 1-3; Aug. 12-15.	1899	Jan. 1, 28, 29, 31; Feb. 1, 2, 7-14, 23; Mar. 6, 7.	Aug. 9-12, 20, 21, 23, 24, 26; Sept. 3-7.
1895	Jan. 1, 12-14, 26, 27, 30, 31; Feb. 2-5, 7-14, 17; Dec. 3.	None.	1900	Jan. 3, 29, 31; Feb. 1, 16-18.	Aug. 15-21.
1896	Jan. 3, 4; Nov. 30; Dec. 1.	July 2, 3, 15, 22, 24, 27-31; Aug. 1-9, 14, 15, 21; Sept. 16, 17.	1901	Dec. 14, 15, 17-20.....	June 20-25, 28, 29; July 2-5, 7, 10-24, 29; Aug. 2, 3, 9, 25, 30.
1897	Jan. 25-29; Feb. 27....	June 17, 18, 22, 29, 30; July 1-10, 22-25, 29-31; Aug. 1-5, 24, 26-29, 31; Sept. 1-4, 8-12, 15, 25, 27.	1902	Jan. 13, 27; Feb. 2-5, 15, 16.	None.
1898	Jan. 2; Feb. 8; Dec. 10, 13, 14.	None.	1903	Nov. 19; Dec. 13, 26..	Do.

ARKANSAS.

Northeastern Section: RANDOLPH COUNTY. Station: POCAHONTAS.

BENEDICTINE SISTERS, Observers.

[Established July, 1891. Latitude, 36° 11' N. Longitude, 93° 52' W. Elevation, unknown.]

This station is located in a hilly country which is covered with timber.

The thermometers are exposed in a standard cotton region instrument shelter and consist of Weather Bureau maximum and minimum thermometers 6 feet above the ground. The shelter is 30 feet from the nearest building.

The rain gage is located in an open plot free from such obstructions as buildings or trees, the nearest building being 40 feet distant. The top of the gage is 3½ feet above the ground.

The records of this station are incomplete until March, 1894; from the latter date to and including 1903 they are complete. The entire period of observation is covered by the various data called for.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	38	48	70	27	-11	42	35	3.5	6	4.2	5.2	1.5	5.3
January.....	36	47	74	26	0	42	32	3.5	8	1.1	3.7	1.0	7.0
February.....	36	45	75	25	-22	42	27	3.5	7	3.5	3.1	1.1	2.0
Winter mean.....	37	47		24				10.5	21	8.8	12.0	3.6	
March.....	49	59	88	38	14	53	43	5.4	11	3.9	3.1	T.	0.8
April.....	60	70	98	47	27	64	54	3.3	8	3.4	3.0	0.0	0.0
May.....	70	79	97	58	31	73	63	4.5	8	0.7	4.8	0.0	0.0
Spring mean.....	60	69		48				13.2	27	8.0	10.9	T.	
June.....	75	83	103	65	43	78	70	3.6	8	0.3	6.4	0.0	0.0
July.....	80	90	111	68	52	84	77	4.4	9	1.0	1.5	0.0	0.0
August.....	79	90	107	67	52	80	77	3.4	6	3.2	5.1	0.0	0.0
Summer mean.....	78	89		67				11.4	23	4.5	13.0	0.0	
September.....	72	83	98	59	36	75	66	3.0	6	1.4	5.5	0.0	0.0
October.....	60	73	90	47	24	64	52	2.5	6	1.1	2.3	0.0	0.0
November.....	48	60	85	32	11	55	45	2.9	6	2.2	4.6	T.	0.5
Fall mean.....	60	72		46				8.4	18	4.7	12.4	T.	
Annual mean.....	58	70	111	47	-22			43.5	89	26.0	48.3	3.6	7.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 26-28, 30, 31.....	Aug. 1, 14, 15.	1900	Jan. 29; Feb. 1, 17, 18..	None.
1895	Jan. 11, 12, 25-27; Feb. 1-4, 6, 8, 12, 13.	June 2.	1901	Dec. 14-21.....	June 21-29; July 1-3, 11, 12, 16-20; July 21-24, 28, 29; Aug. 2, 3, 8, 9.
1896	Jan. 3, 4.....	July 31; Aug. 1, 5-8, 15.	1902	Jan. 13, 27; Feb. 2, 4, 5, 16.	July 16; Aug. 3-5, 13-15, 18.
1897	Jan. 24-29.....	None.	1903	Jan. 13; Feb. 17, 19...	Aug. 4, 13.
1898	None.....	Do.			
1899	Jan. 1, 19, 29, 31; Feb. 1, 8-14; Mar. 7.	Do.			

ARKANSAS.

Northwest District: SEBASTIAN COUNTY. Station: FORT SMITH.

T. S. COLLINS, Observer.

[Established by Signal Service June 1, 1882. Latitude, 35° 22' N. Longitude, 94° 24' W. Elevation, 437 feet.]

The station is located at the western boundary of the State, and is situated in a valley of the Arkansas River at the junction of the Poteau. The office building is near the northwestern limits of the city. From the river the valley extends northwest and northeast to a range of hills 5 miles distant. The elevation of those hills on the northeast and northwest sides of the valley is from 200 to 300 feet, being highest to the northwest. On the east the valley extends in a gradual slope to a line of broken hills distant three-fourths of a mile, while on the south the valley extends to a line of hills in a gradual rise for a mile.

The thermometers and other instruments have a roof exposure. The height of the thermometers above the roof of the building is 10 feet, and above the ground 79 feet. The anemometer is 94 feet above the ground. The wind vane is 94.5 feet above the ground. The sunshine recorder is exposed on the roof of the instrument shelter.

Precipitation data are from twenty-one years' record and humidity from fifteen years. Other data are from full period of observation, twenty-two years, June 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	43	52	79	33	3	58	38	3.0	8	1.9	2.6	1.2	8.0	77	1.96	64	2.35	E.	
January.....	38	48	80	29	-7	46	28	2.4	9	1.0	4.0	1.7	7.4	80	1.82	66	2.10	E.	
February.....	42	51	82	32	-15	48	32	3.0	8	0.8	6.3	0.8	6.0	79	1.87	64	2.26	E.	
Winter mean.....	41	50	.....	31	.....	.....	.....	8.4	25	3.7	12.9	3.7	.....	79	1.88	65	2.24	E.
March.....	51	62	87	40	14	55	45	3.7	10	3.4	6.0	0.2	2.0	76	2.42	57	2.76	E.	
April.....	62	73	94	52	28	66	59	4.0	11	3.4	8.2	0.0	0.0	76	3.68	55	3.73	E.	
May.....	70	80	98	59	34	74	67	5.0	11	2.5	5.4	0.0	0.0	80	5.25	65	5.89	E.	
Spring mean.....	61	72	.....	50	.....	.....	.....	12.7	32	9.3	19.6	0.2	.....	77	3.78	59	4.13	E.
June.....	77	87	101	67	49	80	71	4.0	10	1.4	3.0	0.0	0.0	81	6.89	63	7.19	E.	
July.....	81	92	106	70	56	85	76	3.7	9	3.2	2.7	0.0	0.0	81	7.58	60	7.64	E.	
August.....	80	91	107	69	45	85	76	3.5	7	0.6	10.9	0.0	0.0	83	7.29	62	7.43	E.	
Summer mean.....	79	90	.....	69	.....	.....	.....	11.2	26	5.2	16.6	0.0	.....	82	7.25	62	7.39	E.
September.....	74	85	102	62	40	80	69	3.1	7	0.4	7.2	0.0	0.0	82	5.56	62	6.18	E.	
October.....	63	75	95	51	28	68	57	3.0	7	2.0	2.8	0.0	0.0	81	3.67	58	4.06	E.	
November.....	51	61	86	40	17	56	46	3.4	7	2.2	5.6	T.	0.2	80	2.57	58	2.76	E.	
Fall mean.....	63	74	.....	51	.....	.....	.....	9.5	21	4.6	15.6	T.	.....	81	3.93	59	4.33	E.
Annual mean.....	61	71	107	50	-15	.....	.....	41.8	104	22.8	64.7	3.9	8.0	80	4.21	61	4.52	E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 9°.	Maximum 101° or above.	Year.	Minimum below 9°.	Maximum 101° or above.
1894	Jan. 24-25; Dec. 28.	July 1-4; Aug. 14.	1899	Jan. 29, 31; Feb. 8, 9, 11-13.	Aug. 9-11, 20, 26; Sept. 4, 5.
1895	Jan. 12, 13, 30; Feb. 2, 4, 6-9.	None.	1900	Feb. 17.	None.
1896	None.	July 24-31; Aug. 1-3, 5-8, 13-15, 17, 20-22; Sept. 8, 17.	1901	Dec. 14, 15, 17.	July 5, 7, 11-15, 17, 23; Aug. 25.
1897	Jan. 27.	July 7, 8, 30; Aug. 1, 3, 4.	1902	None.	Aug. 26.
1898	None.	None.	1903	Feb. 17.	None.

ARKANSAS.

Central Section: FAULKNER COUNTY. Station: CONWAY.

G. H. BURR, Observer.

[Established January, 1884. Latitude, 35° 05' N. Longitude, 92° 25' W. Elevation, 309 feet.]

This station is located on a broad, open plain nearly surrounded by hills, the nearest of which are 1 mile distant to the north. The surrounding country is covered with timber.

The thermometers are exposed in a standard cotton region instrument shelter, which is located on an open plot of ground on the side of a gentle slope. The thermometers are of the standard Weather Bureau pattern, and are 3 feet above the ground. The rain gage is located on the same plot of ground as the instrument shelter and is 20 feet south of it.

From January, 1884, to December, 1896, the mean temperature for the day was obtained from exposed thermometer readings made at 7 a. m., 2 p. m., and 9 p. m. Beginning with 1897 the mean temperature was obtained from maximum and minimum thermometer readings. The mean temperature, average precipitation, and total amounts for the driest and wettest years are based upon the entire period of observations; the mean maximum and minimum temperature on records extending from 1897 to and including 1903. All other data are based on records extending from 1891 to and including 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	53	74	33	-5	57	36	4.0	6	4.9	2.6	1.8	8.0	SW.
January.....	39	54	76	32	-1	50	26	3.7	7	1.2	6.1	3.1	10.2	NW.
February.....	42	52	80	30	-15	50	34	4.2	7	3.9	11.1	1.6	3.8	NW.
Winter mean.....	41	53	.....	32	.....	.....	.....	11.9	20	10.0	19.8	6.5	.....	NW.
March.....	52	67	89	42	11	57	43	4.8	8	5.6	10.5	0.8	6.0	NW.
April.....	62	75	96	51	28	68	59	3.6	7	3.1	12.2	0.0	0.0	SW.
May.....	70	84	98	58	33	75	63	4.9	9	1.2	6.5	0.0	0.0	SW.
Spring mean.....	61	75	.....	50	.....	.....	.....	13.3	24	9.9	29.2	0.8	.....	SW.
June.....	77	91	105	67	49	81	72	3.9	7	1.0	3.8	0.0	0.0	SW.
July.....	80	95	101	71	52	86	76	3.5	8	0.9	3.3	0.0	0.0	SW.
August.....	79	96	112	69	55	86	75	3.1	6	2.2	4.0	0.0	0.0	SW.
Summer mean.....	79	94	.....	69	.....	.....	.....	10.5	21	4.1	11.1	0.0	.....	SW.
September.....	73	88	109	62	36	79	64	3.4	5	1.9	10.3	0.0	0.0	SW.
October.....	61	79	101	51	27	68	56	2.1	4	2.2	2.6	0.0	0.0	SW.
November.....	50	65	85	40	14	56	45	4.2	5	3.5	4.7	0.7	6.5	NE.
Fall mean.....	61	77	.....	51	.....	.....	.....	9.7	14	7.6	17.6	0.7	.....	SW.
Annual mean.....	61	75	112	50	-15	.....	.....	45.4	79	31.6	77.7	8.0	10.2	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24, 25.....	None.	1899	Jan. 1, 31; Feb. 1, 8-13.	June 14, 19, 20, 22, 24; Aug. 1, 2, 6-13, 19-25, 27; Sept. 2-8; Oct. 13.
1895	Jan. 31; Feb. 2, 7-9, 13.	Do.	1900	Jan. 29; Feb. 1, 17.....	Aug. 14-16, 20, 21.
1896	None.....	July 27, 30, 31; Aug. 1, 2, 5-8, 13, 14.	1901	Dec. 15, 20.....	June 16, 20-22, 27, 28; July 2-4, 6, 7, 10-14, 16-24, 30; Aug. 1-3, 9, 25.
1897	Jan. 27-29.....	June 19, 21-23, 30; July 1, 2, 4-10, 16, 24-26, 29-31; Aug. 1-4, 26, 27; Sept. 3, 11, 28.	1902	Feb. 3.....	June 15; July 15-19; Aug. 13-22.
1898	Dec. 14.....	July 20-22, 26, 28, 30; Aug. 17, 19, 21-23; Sept. 1-3, 5, 26, 27; Oct. 4.	1903	Feb. 17, 18.....	July 22.

ARKANSAS.

Central District: PULASKI COUNTY. Station: LITTLE ROCK.

E. B. RICHARDS, Section Director.

[Established by U. S. Signal Service, July 1, 1879. Latitude, 34° 45' N. Longitude, 92° 6' W. Elevation, 302 feet.]

Date of change.	Building occupied.	Elevation.	Date of change.	Building occupied.	Elevation.
July 1, 1879.....	Stoddard Bank Building.....	Feet. 294.2	Nov. 16, 1902.....	Miller Building.....	Feet. 301.6
Mar. 1, 1887.....	Board of Trade Building.....	300.1	July 1, 1898.....	Federal building.....	300.8

The city of Little Rock is situated in the valley of the Arkansas on the south bank of that river; the business portion is on a bluff which is from 25 to 75 feet above the level of the river, and gradually rises to the southern limits of the city. The surrounding country is rolling and is well covered with timber. The office is located on the fourth floor of the Federal building, which is in the heart of the business section of the city. The roof of the building is considerably higher than the surrounding buildings and affords an excellent exposure of the instruments. The thermometers are exposed in the standard Weather Bureau instrument shelter. The shelter and all instruments are located on the roof of the building. The rain gage is 85 feet above ground, anemometer, 100 feet; wind vane, 101.5 feet; instrument shelter, 92 feet, above roof, 10.3 feet.

The humidity as tabulated is from fifteen years' record; the sunshine, ten years. Remaining data are from the full period of observation, twenty-four years, July 1, 1879, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 44	° F. 52	° F. 78	° F. 36	° F. -6	° F. 59	° F. 38	In. 3.9	8	In. 0.5	In. 1.3	In. 0.8	In. 4.0	P.ct. 81	Gra. 2.22	P.ct. 65	Gra. 2.47	162	53	NW.
January.....	41	49	78	34	-5	56	30	5.0	10	4.8	8.2	2.6	11.2	81	2.07	68	2.32	153	48	NW.
February.....	44	53	78	36	-12	54	33	4.5	9	2.9	12.7	6.2	2.0	81	2.14	65	2.38	162	53	NW.
Winter mean.....	43	51	.....	35	.....	.....	.....	13.4	27	8.2	22.2	9.6	.....	81	2.14	66	2.39	159	51	NW.
March.....	53	62	87	41	16	59	47	5.0	11	4.3	6.2	0.6	5.0	77	2.63	61	2.95	202	54	NW.
April.....	63	77	94	58	28	68	59	4.3	11	2.7	5.6	0.0	0.0	77	3.86	57	4.00	254	65	S.
May.....	70	80	94	61	39	76	67	5.2	9	1.3	15.9	0.0	0.0	80	5.43	62	5.62	285	63	S.
Spring mean.....	62	73	.....	54	.....	.....	.....	14.5	31	8.3	27.7	0.6	.....	78	3.97	60	4.19	247	61	S.
June.....	77	87	102	68	51	81	72	3.6	10	3.3	2.0	0.0	0.0	82	6.98	65	7.11	319	73	S.
July.....	81	90	106	72	60	85	77	4.0	10	0.9	5.2	0.0	0.0	83	7.77	65	7.79	316	72	SW.
August.....	79	89	105	70	52	85	76	3.6	9	1.8	3.2	0.0	0.0	85	7.46	65	7.56	330	81	NE.
Summer mean.....	79	89	.....	70	.....	.....	.....	11.2	29	6.0	10.4	0.0	.....	83	7.40	65	7.49	325	75	SW.
September.....	73	83	100	64	41	78	70	3.4	7	3.8	3.0	0.0	0.0	84	5.89	65	6.28	276	74	NE.
October.....	63	74	93	54	32	69	59	2.5	6	3.1	6.0	0.0	0.0	82	3.84	60	4.20	249	71	NE.
November.....	51	61	83	42	10	58	42	4.6	8	3.8	6.2	0.3	2.0	81	2.76	62	2.90	175	56	NE.
Fall mean.....	62	73	.....	53	.....	.....	.....	10.5	21	10.7	15.2	0.3	.....	82	4.16	62	4.46	233	67	NE.
Annual mean.....	62	71	106	53	-12	.....	.....	49.6	108	33.2	75.5	10.5	11.2	81	4.42	63	4.63	241	64	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 4.....	June 29, 30; July 1.	1899	Jan. 31; Feb. 1, 9-13...	Aug. 20.
1895	Feb. 7, 8.....	None.	1900	Feb. 17.....	None.
1896	None.....	July 23-25, 27-31; Aug. 1-3, 5-8, 13, 16, 21; Sept. 17.	1901	Dec. 15, 20.....	July 11, 12, 23; Aug. 3.
1897	.....do.....	June 22; July 6, 31; Aug. 1-4, 26, 27.	1902	None.....	None.
1898	.....do.....	None.	1903	Feb. 17.....	Do.

ARKANSAS.

Southeastern Section: PHILLIPS COUNTY. Station: HELENA.

E. B. BURKE, Observer.

[Established 1878. Latitude, 34° 32' N. Longitude, 90° 32' W. Elevation, 182 feet.]

This station is located in the Mississippi valley; to the north, northwest, west, and southwest are hills; to the east, south-east, and south the land is low. The surrounding country is covered with timber.

The thermometers are exposed in a standard cotton-region instrument shelter and are 4 feet above the ground.

The rain gage is located on a grass plot, 10 feet from the instrument shelter and 3 feet above the ground. There are no trees or buildings to interfere with the exposure.

The records of this station are incomplete up to 1897. The mean temperature and average precipitation are based on available data from the establishment of the station to and including December, 1903. The amounts for the driest and wettest years are taken from full-year records from 1887 to and including 1903. The mean maximum and mean minimum temperature and all other data are based on observations between 1891 and 1903, inclusive. The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In. °		In.	In.	In.	In.
December.....	45	54	73	35	8	48	40	5.1	9	5.0	3.7	1.5	4.0
January.....	42	51	75	32	2	47	36	5.9	10	4.8	10.1	2.0	10.0
February.....	44	53	75	34	— 7	53	34	5.1	10	2.8	9.3	0.9	5.0
Winter mean.....	44	53		34				16.1	29	12.6	23.1	4.4	
March.....	53	63	89	43	12	60	48	6.4	11	4.9	7.5	0.2	1.0
April.....	63	74	93	52	32	67	58	5.6	10	2.2	8.6	0.0	0.0
May.....	71	83	98	61	39	78	68	4.0	9	3.0	4.7	0.0	0.0
Spring mean.....	62	73		52				16.0	30	10.1	20.8	0.2	
June.....	78	90	104	68	45	82	72	4.2	7	2.1	4.6	0.0	0.0
July.....	82	93	105	71	57	86	78	3.9	10	6.1	2.6	0.0	0.0
August.....	80	93	109	70	50	84	78	3.5	8	1.8	4.2	0.0	0.0
Summer mean.....	80	92		70				11.6	25	10.0	11.4	0.0	
September.....	74	88	105	63	40	81	70	3.7	5	0.5	9.0	0.0	0.0
October.....	62	78	99	50	30	70	50	3.3	5	0.8	3.3	0.0	0.0
November.....	52	65	90	41	19	57	42	4.5	7	3.6	3.2	0.0	0.0
Fall mean.....	63	77		51				11.5	17	4.9	15.5	0.	
Annual mean.....	62	74	109	52	— 7			55.2	101	37.6	70.8	4.6	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Jan. 25; Dec. 28.....	June 30; Aug. 8, 9; Sept. 6.	1898	None.....	July 21; Aug. 17, 19-22; Sept. 2.
1895	Feb. 7-9.....	June 2; July 17, 19, 20; Aug. 13, 14, 19; Sept. 10-15, 18.	1899	Feb. 1, 10-13.....	Aug. 2, 3, 8-14, 22, 25, 26; Sept. 4-6, 8.
1896	None.....	July 15-17, 22, 29-31; Aug. 1, 2, 4-8, 12-17, 21, 22.	1900	Feb. 17.....	None.
1897	.....do.....	July 1, 7, 9, 10, 26; Aug. 1-5, 29; Sept. 2, 3, 8, 10, 11.	1901	None.....	July 12, 17, 21-23; Aug. 3.
			1902	Jan. 27, 28.....	July 18.
			1903	None.....	None.

ARKANSAS.

Southwestern Section: POLK COUNTY. Station: DALLAS.

D. H. HOPKINS, Observer.

[Established March, 1887. Latitude, 34° 32' N. Longitude, 94° 13' W. Elevation, 1,400 feet.]

This station is located in a hilly or mountainous country. The surrounding country is covered with timber.

The maximum and minimum thermometers are exposed in a standard cotton region instrument shelter, which is located on the lawn in the rear of the house and is 7½ feet above the ground.

The rain gage is 10 feet from the instrument shelter and 12 feet from a low porch. The top of the gage is 4½ feet above the ground.

The records of this station are continuous from March, 1887, to and including December, 1903. The mean temperature and average precipitation are based on the records for the entire period. The mean maximum and mean minimum temperatures and all other data are based on that portion of the records embraced within the years 1891 to 1893, inclusive. Temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	42	52	75	33	3	47	38	4.0	7	1.2	7.5	2.4	6.5	SW.
January.....	40	50	71	31	3	45	34	3.8	8	3.0	2.8	3.2	10.0	SW.
February.....	43	53	78	32	-15	51	33	3.0	5	3.1	4.3	0.9	4.0	SW.
Winter mean.....	42	52		32				10.8	20	7.3	14.6	6.5		SW.
March.....	52	62	85	41	11	56	46	5.4	8	5.7	2.9	2.2	10.5	SW.
April.....	63	74	91	51	27	66	60	4.6	8	1.1	8.7	0.0	0.0	SW.
May.....	74	80	92	59	39	76	62	6.8	9	4.1	15.8	0.0	0.0	SW.
Spring mean.....	63	72		50				16.8	25	10.9	27.4	2.2		SW.
June.....	77	88	100	66	48	83	70	4.2	8	2.0	6.1	0.0	0.0	SW.
July.....	81	91	108	69	56	84	76	4.8	7	2.9	2.2	0.0	0.0	SW.
August.....	80	92	106	68	47	84	75	4.3	6	1.5	8.5	0.0	0.0	SW.
Summer mean.....	79	90		64				13.3	21	6.4	16.8	0.0		SW.
September.....	73	85	102	62	37	79	68	3.9	5	4.0	3.8	0.0	0.0	SW.
October.....	62	75	91	51	31	67	58	2.5	4	2.7	9.1	0.0	0.0	SW.
November.....	52	62	85	42	13	57	46	3.7	5	4.4	4.8	0.8	9.9	SW.
Fall mean.....	62	74		52				10.1	14	11.1	17.7	0.8		SW.
Annual mean.....	62	72	108	50	-15			51.0	80	35.7	76.5	9.5	10.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Dec. 27, 28.....	None.	1898	Dec. 10.....	None.
1895	Jan. 13, 30, 31; Feb. 6-9, 13.....	Do.	1899	Jan. 1; Feb. 8-11.....	Aug. 2, 9-12, 20-26; Sept. 4 & 6.
1896	None.....	June 14; July 1-3, 23-31; Aug. 1-8, 13-17, 21, 22.....	1900	Jan. 29; Feb. 17.....	None.
1897	Dec. 4; Jan. 27.....	July 5-8, 10, 26, 30, 31; Aug. 1, 3-5.	1901	Dec. 14, 15, 17, 18.....	July 10-15, 22, 23.
			1902	None.....	Aug. 4.
			1903	Feb. 17.....	None.

ARKANSAS.

Central Section: JEFFERSON COUNTY. Station: PINE BLUFF.

J. M. HUDSON, Observer.

[Established in 1884. Latitude, 34° 13' N. Longitude, 91° 58' W. Elevation, 215 feet.]

This station is located in a level country, with hills to the south and west and low bottom lands to the east and south-east. There is considerable timber in the vicinity.

The thermometers are exposed in a standard cotton region shelter placed 4 feet above the ground. The shelter is situated on an open plat of ground; the nearest building is a low shed some 15 feet distant.

The rain gage is located on the same lot as the shelter and is free from such obstructions as trees or buildings. The top of the gage is 3 feet above the ground.

The records of the station are incomplete from 1884 to 1890. The mean temperature and average precipitation are based on records for the entire period of observation to and including December, 1903. The mean maximum and mean minimum temperatures and all other data were obtained from the records for the years 1891 to 1903, inclusive. The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 46	° F. 55	° F. 78	° F. 34	° F. 5	° F. 50	° F. 39	In. 4.4	8	In. 4.3	In. 13.4	In. 1.7	In. 4.0	S.
January.....	43	53	76	33	6	49	37	5.6	8	3.6	3.0	1.7	9.0	S.
February.....	46	56	80	34	— 5	53	36	4.2	9	2.3	5.3	0.7	2.0	S.
Winter mean.....	45	55	.....	34	.....	.....	.....	14.2	25	10.2	21.7	4.1	.....	S.
March.....	54	65	88	43	12	61	49	5.5	9	5.5	3.6	1.5	14.0	N. S.
April.....	64	75	92	52	30	72	59	4.0	7	4.0	6.4	0.0	0.0	N.
May.....	72	84	99	61	37	78	69	4.3	9	3.2	12.1	0.0	0.0	.....
Spring mean.....	63	75	.....	52	.....	.....	.....	13.8	25	12.7	22.1	1.5	.....	.....
June.....	79	92	104	67	49	82	72	3.9	8	1.0	4.6	0.0	0.0	.....
July.....	82	94	108	70	57	86	79	4.3	8	0.5	3.6	0.0	0.0	.....
August.....	82	94	108	70	54	84	79	2.6	6	2.8	4.2	0.0	0.0	.....
Summer mean.....	81	93	.....	69	.....	.....	.....	10.8	20	4.3	12.4	0.0	.....	.....
September.....	75	88	106	62	40	70	57	3.7	6	4.2	3.7	0.0	0.0	.....
October.....	63	78	96	50	28	59	47	2.1	5	2.6	2.9	0.0	0.0	S.
November.....	53	65	87	41	14	57	47	4.2	6	3.3	9.8	0.0	0.0	S.
Fall mean.....	64	77	.....	51	.....	.....	.....	10.0	17	10.1	16.4	0.0	.....	S.
Annual mean.....	63	75	108	51	— 5	.....	.....	48.8	87	37.3	72.6	5.6	14.0	.....

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	None	June 29, 30; July 1, 2; Aug. 13-15.	1899	Feb. 12, 13	Aug. 2, 8-14, 21, 25, 26; Sept. 4-8.
1895	do	Sept. 10, 11, 14, 15.	1900	Feb. 17	Aug. 17, 19, 22, 23.
1896	do	July 2, 14-16, 18, 19, 22-31; Aug. 1-9, 12-17, 21; Sept. 2, 14-17.	1901	None	June 16, 20-22, 24-29; July 3-6, 8, 11-18, 20-25, 27-31; Aug. 3, 9, 13, 23, 25, 30, 31; Sept. 7, 9, 10.
1897	do	June 19-24, 26, 27, 29, 30; July 1-10, 15, 23, 25-27, 30, 31; Aug. 1-5, 26-30; Sept. 1-4, 10.	1902	do	June 11, 12, 14, 15; July 8-15; Aug. 15-22, 26, 27.
1898	do	July 21, 22; Aug. 17, 23.	1903	Feb. 17	None.

ARKANSAS.

Southwestern Section: OUACHITA COUNTY. Station: CAMDEN.

A. L. MORGAN, Observer.

[Established August, 1888. Latitude, 33° 34' N. Longitude, 92° 45' W. Elevation, 140 feet.]

This station is located about 1 mile from the Ouachita River, on the side of a hill and out of the valley proper. The surrounding country is hilly and covered with timber.

The maximum and minimum thermometers are exposed in a standard cotton region instrument shelter, which is located in the garden to the rear and side of the house. The thermometers are exposed 6 feet above the ground. They are the property of the Weather Bureau.

The rain gage is on a post in the center of the garden, 25 feet southeast from the instrument shelter. There are no trees or buildings nearer than 30 feet. The top of the gage is 4½ feet above the ground.

The mean temperature and average precipitation are deduced from observations dating from the establishment of the station to and including December, 1903. The mean maximum and mean minimum temperatures are based on the records embraced within the years from 1891 to 1903, inclusive. The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December	46	55	78	34	8	61	41	4.3	7	5.4	12.5	1.1	2.5	
January	43	53	80	33	9	49	37	5.5	7	3.7	5.1	0.8	5.8	
February	46	55	80	35	-10	54	34	4.1	7	1.8	4.8	1.6	2.5	S.
Winter mean	45	54		34				13.9	21	10.9	22.4	3.5		
March	54	60	86	43	17	58	50	5.5	9	3.5	3.8	T.	2.0	S.
April	64	76	95	52	30	69	60	4.3	6	2.6	8.2	0.0	0.0	S.
May	72	83	98	60	MI	76	67	4.5	7	9.5	5.8	0.0	0.0	S.
Spring mean	63	73		52				14.3	22	15.6	17.8	T.		S.
June	78	90	102	67	48	81	74	4.5	7	1.8	6.9	0.0	0.0	S.
July	81	93	106	70	54	85	77	4.2	8	1.6	2.8	0.0	0.0	SW.
August	80	92	109	69	48	84	76	2.1	6	1.3	5.0	0.0	0.0	SW.
Summer mean	80	92		69				10.8	21	4.7	14.7	0.0		SW.
September	74	87	103	62	38	79	71	3.3	4	2.0	2.7	0.0	0.0	
October	63	77	97	50	28	69	57	2.5	4	2.3	2.0	0.0	0.0	
November	62	64	90	40	20	60	47	4.4	6	2.4	8.6	0.0	0.0	
Fall mean	66	76		51				10.2	14	.7	13.3	0.0		
Annual mean	64	74	109	51	-10			49.2	78	37.9	22.2	3.5	5.8	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1894	Feb. 7, 8; Dec. 28, 29.	None.	1899	Feb. 12, 13.	Aug. 1, 2, 12, 13, 21; Sept. 6.
1895	None.	Do.	1900	Feb. 17.	July 12-15, 17; Sept. 16.
1896	Jan. 27, 28.	June 21; July 1-3, 15, 17-31; Aug. 1-9, 13-17, 21-23; Sept. 4, 8, 10, 11, 15-18.	1901	Dec. 14.	None.
1897	None.	June 22; July 1-3, 5-7, 10, 16, 26.	1902	None.	Aug. 13, 15-17.
1898	.....do.	June 14.	1903	Feb. 16.	None.

ARKANSAS.

Southeastern Section: BRADLEY COUNTY. Station: WARREN.

W. J. SAVAGE, Observer.

[Established 1895. Latitude, 33° 35' N. Longitude, 91° 51' W. Elevation, 206 feet.]

The country in the vicinity of this station is rolling and is covered with timber.

The maximum and minimum thermometers are exposed in a standard cotton region instrument shelter, and are about 6 feet above sod. The shelter is located in an open space with shrubs in the vicinity, but has no obstructions within 30 feet of it.

The rain gage is located in an open space about 10 feet from the shelter and 30 feet east of the house, and is 3 feet above the ground.

All values are based on the records from 1895 to and including 1903.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December	46	57	75	33	7	49	42	4.4	6	2.8	7.4	1.2	3.0	N.
January	44	56	80	33	10	50	42	5.0	7	4.4	4.1	1.4	6.0	N.
February	44	55	82	32	-10	52	33	4.7	7	6.0	3.8	2.1	4.0	N.
Winter mean	45	56		33				14.1	21	13.2	15.3	4.7		N.
March	55	67	87	42	22	59	52	5.6	8	7.8	6.7	1.0	4.0	N.
April	62	76	94	50	28	70	58	4.4	6	4.8	4.8	0.0	0.0	S.
May	72	84	98	60	34	77	65	4.2	8	2.0	4.2	0.0	0.0	
Spring mean	63	76		51				14.2	22	14.6	15.7	1.0		
June	78	90	106	66	47	81	74	3.6	7	2.5	6.3	0.0	0.0	SW.
July	83	94	108	70	53	86	81	2.6	8	1.2	4.3	0.0	0.0	SW.
August	82	94	108	69	55	84	80	3.2	6	3.8	0.9	0.0	0.0	
Summer mean	81	93		68				9.4	21	7.5	11.5	0.0		SW.
September	75	89	105	62	40	80	70	3.5	5	3.4	6.7	0.0	0.0	
October	64	79	96	50	27	69	59	4.0	5	5.3	5.5	0.0	0.0	
November	53	67	82	40	12	58	51	3.8	6	4.0	6.5	0.0	0.0	N.
Fall mean	64	78		50				11.3	16	12.7	18.7	0.0		N.
Annual mean	63	76	108	50	-10			49.0	80	48.0	61.2	5.7	6.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1895	None	Sept. 11-15.	1899	Feb. 1, 12, 13	July 31; Aug. 1-3, 8-14, 21, 22, 24-27; Sept. 4-7.
1896	do	July 2, 13, 14, 16, 17, 19, 22-31; Aug. 1-8, 12-17, 21; Sept. 15-17.	1900	Feb. 17, 18	Aug. 23; Sept. 16, 17.
1897	do	June 20, 22, 23, 25, 30; July 1, 2, 5-7, 10, 15, 24-26, 30, 31; Aug. 1-5, 25-29, 31; Sept. 2-4, 11.	1901	Dec. 15, 16, 18, 20, 21	June 21, 23; July 3, 4, 7, 10-17, 23, 24, 30; Aug. 3.
1898	do	July 21, 22; Aug. 24.	1902	None	None.
			1903	Feb. 17	Aug. 3, 25.

NORTH DAKOTA.

By BYRON H. BRONSON,
Section Director.

NORTH DAKOTA.

The general contour of the State of North Dakota is that of a great undulating plain, sloping gradually from west to east, and without any prominent elevations or depressions and an almost entire lack of timber, as about the only trees to be found are the few that fringe the banks of the rivers and other small water courses. The only mountains, so-called, are the Turtle Mountains, located in the north central portion, extending over the boundary line into Canada and covering an area of about 800 square miles, having an altitude of about 1,500 feet, or less than that of the western part of the State. A range of hills called the "Coteau du Missouri" extend along the Missouri River, the banks of which range from 1,400 to 1,700 feet above sea level. These hills have a varying width, usually not over 50 miles, and their general trend follows that of the river.

The Missouri is the principal river, entering the State from the west at about latitude 48° north and running in a general southeasterly direction, leaving it about the center of the extreme southern portion. A number of other rivers are the James, Mous, Sheyenne, Knife, and Heart, all of which are small streams, while the Red River of the North is, next to the Missouri, the most important one of the State, the adjacent land having an area of about 8,000 square miles.

The physical features of the State should not have any great influence on its climate, nor have they, as far as temperature is concerned. Having for its northern limit the 49° of north latitude, which parallel forms the boundary between the United States and Canada, it is only to be expected that a severe climate would be found during the winter period, and as there are neither sheltering mountains or forests, the temperature ranges are not great for different portions of the State for the same time. The eastern portion is the coldest and the western the warmest, while the northern portion is colder than the southern, but there is only a range of about 6° in the annual mean temperature between the two extremes. The annual mean for the entire State is 39°; the highest maximum ever recorded 110°; the lowest minimum ever recorded -54°.

Regarding precipitation, it would seem from a survey of the face of the country that there would be a similarity in monthly and annual amounts in all parts of the State, but such is far from the case. The total annual amount for the entire state ranges between 17 and 18 inches; the heaviest, about 20 inches, being recorded in the Red River Valley, and the least, about 14 inches, in the extreme western part of the State, but as most of the precipitation, especially the summer rainfall, comes from local storms, there is usually a decided variation between the amounts at stations located closely together, as well as a very great range between the amounts that fall in different years.

Although the winters are long and severe, the advance of summer when it commences is rapid, and while the number of days embraced in that period are few, yet, from the long hours of sunlight, which at the maximum time is nearly sixteen hours a day, vegetation grows very rapidly, and although, as a rule, only the hardier cereals are grown, still they usually reach maturity, although killing frosts occur as late as June 1, and sometimes later, and are usually general again about September 1.

High winds are frequent, but as they occur most often in the winter and spring have but little effect on vegetation, and are not, as a rule, destructive. Hail storms prevail during the summer months and are usually destructive over the narrow path they take, but the total damage done by them is not large. Thunder storms prevail during the summer months, almost all the precipitation coming from that source, but they are not as severe as in lower latitudes and as a rule no damage is done by them.

The snowfall during the winter is light as a general thing, and there being nothing to break the force of the winds, which sweep across the almost level plains with great force, it usually blows away almost as soon as it falls, keeping the great cattle ranges, which embrace a large portion of the country west of the Missouri River, uncovered, so that stock can graze on the open prairie.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Barnes (<i>see</i> Berlin)		Southeastern		Mercer (<i>see</i> Oakdale)		Central	
Benson (<i>see</i> Churches Ferry)		Northern		Morton (<i>see</i> Bismarck)		do	
Billings (<i>see</i> Dickinson)				Nelson (<i>see</i> University)		Eastern	
Bottineau	Willow City	Northern	473	Oliver (<i>see</i> Bismarck)		Central	
Burleigh	Bismarck	Central	479	Pembina (<i>see</i> Milton)		Northeastern	
Cass (<i>see</i> Wahpeton)		Southeastern		Pierce (<i>see</i> Willow City)		Northern	
Cavalier	Milton	Northeastern	475	Ramsey	Churches Ferry	Northeastern	474
Dickey (<i>see</i> Berlin)		Southeastern		Ransom (<i>see</i> Wahpeton)		Southeastern	
Dunn	Oakdale	Western	476	Richland	Wahpeton	do	483
Eddy (<i>see</i> Churches Ferry)		Northeastern		Rolette (<i>see</i> Willow City)		Northern	
Emmons (<i>see</i> Ashley)		Southern		Sargent (<i>see</i> Wahpeton)		Southeastern	
Foster (<i>see</i> Jamestown)		Eastern		Stark	Dickinson	Western	478
Grand Forks	University	do	477	Steele (<i>see</i> University)		Eastern	
Griggs (<i>see</i> Jamestown)		do		Stutsman	Jamestown	do	480
Kidder (<i>see</i> Bismarck)		Central		Towner (<i>see</i> Milton)		Northern	
Lamoure	Berlin	Southeastern	482	Trall (<i>see</i> University)		Eastern	
Logan (<i>see</i> Ashley)		Southern		Walsh (<i>see</i> Milton)		Northeastern	
McHenry (<i>see</i> Willow City)		Northern		Ward (<i>see</i> Williston)		Northwestern	
McIntosh	Ashley	Southern	481	Wells (<i>see</i> Churches Ferry)		Central	
McLean (<i>see</i> Bismarck)		Central		Williams	Williston	Northwestern	472

NORTH CENTRAL DISTRICTS.

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STATE SUMMARY.

Station.	No.	Temperature.									
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number days with—		
									Maximum above 90°.	Minimum below 32°.	
Williston.....	1	39	51	27	107	June, 1883.....	-49	January, 1888.....	15	179	
Willow City.....	2	36	50	23	104	Aug. 1893.....	-54	February, 1893.....	11	142	
Churches Ferry.....	3	37	49	25	103	July, 1893.....	-44	February, 1895.....	7	144	
Milton.....	4	35	47	24	99	June, 1900.....	-45	February, 1893.....	6	139	
Oakdale.....	5	41	52	31	101	July, 1893.....	-41	February, 1899.....	5	118	
University.....	6	38	50	27	98	June, 1900.....	-39	do.....	6	116	
Dickinson.....	7	40	54	27	110	August, 1900.....	-43	February, 1893.....	13	124	
Bismarck.....	8	40	51	29	106	July, 1901.....	-44	January, 1887.....	14	171	
Jamestown.....	9	40	52	28	103	July, 1900.....	-40	February, 1893.....	8	122	
Ashley.....	10	39	53	26	110	August, 1900.....	-45	February, 1895.....	12	136	
Berlin.....	11	39	52	26	104	July, 1901.....	-44	February, 1893.....	17	124	
Wahpeton.....	12	42	55	30	105	July, 1894.....	-44	do.....	14	114	

Station.	No.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Williston.....	1	Sept. 14	May 18	Aug. 18	June 10	Inches. 15.6	Inches. 4.1	Inches. 7.5	Inches. 2.3	Inches. 1.7
Willow City.....	2	Aug. 31	June 1	July 30	June 14	15.4	4.0	6.8	3.2	1.4
Churches Ferry.....	3	Sept. 16	do	Aug. 27	do	18.9	4.7	9.0	3.9	1.3
Milton.....	4	Sept. 12	May 29	Sept. 3	do	20.5	6.4	8.8	3.8	1.5
Oakdale.....	5	Sept. 15	May 2	Aug. 10	June 6	17.9	6.1	7.5	2.6	1.7
University.....	6	Sept. 14	May 14	Sept. 8	June 7	20.1	6.1	8.4	4.1	1.5
Dickinson.....	7	Sept. 20	May 22	Sept. 10	May 26	14.5	4.6	6.2	2.2	1.5
Bismarck.....	8	Sept. 15	May 15	Aug. 17	June 23	18.8	5.8	8.3	2.7	2.0
Jamestown.....	9	Sept. 14	May 26	Sept. 4	June 7	19.8	5.8	8.6	3.6	1.8
Ashley.....	10	Sept. 8	May 30	Aug. 29	do	17.6	5.5	8.1	2.3	1.7
Berlin.....	11	Sept. 12	June 2	Aug. 31	June 21	20.8	5.5	10.0	3.2	2.1
Wahpeton.....	12	Sept. 15	May 8	Sept. 7	June 9	21.3	5.9	10.1	3.9	1.4

NORTH DAKOTA.

Northwestern District: WILLIAMS COUNTY. Station: WILLISTON.

E. J. GLASS Observer.

[Established by Signal Service January 14, 1879, at Fort Buford, N. Dak., and removed to Williston, N. Dak., 22 miles eastward, November 23, 1893. Latitude, 48° 91' N. Longitude, 103° 35' W. Elevation, 1,869 feet.]

At this station the Missouri River reaches its most northerly point; its original banks are very prominent, resembling hills; in fact, the south bank, which is 3 miles south of Williston rises abruptly, having an elevation of about 200 feet, and is called Indian hills; to the north the land gradually rises for about 3 miles, thus forming a large elliptical basin, its diameters being about 8 miles east and west and 5 miles north and south, with Williston situated near the center. The thermograph and thermometers are exposed in a standard Weather Bureau instrument shelter on the sod, 50 feet from the office. The rain gage is 20 feet north of the instrument shelter on a platform 6 inches above the ground, thus making the rain gage 4 feet above ground. Anemometer, wind vane, and electrical sunshine recorder are exposed from the roof of the office building; the anemometer at an elevation of 31 feet above ground.

The humidity record is for fifteen years, 1889-1903; remainder of tabulated data is for the full period of observation, twenty-five years, January 12, 1879, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.							Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Grs.	P. ct.	Grs.			
December.....	14	23	59	— 4	— 46	26	— 4	0.6	8	0.4	3.1	6.1	8.0	80	0.72	78	0.84	W.	
January.....	6	17	52	— 4	— 49	21	— 7	0.6	7	0.1	0.1	6.6	7.5	81	0.49	79	0.64	NW.	
February.....	8	19	57	— 3	— 46	22	— 7	0.5	7	0.1	0.5	5.4	5.8	81	0.43	76	0.62	NW.	
Winter mean.....	9	20		— 1				1.7	22	0.6	3.7	18.1	.....	81	0.55	78	0.70	NW.
March.....	22	33	72	11	— 35	35	7	0.7	7	0.1	0.2	6.8	12.0	82	0.77	72	1.17	N.	
April.....	43	56	92	31	— 4	51	36	1.3	7	1.3	0.7	4.0	10.0	78	1.84	50	2.11	NW.	
May.....	55	67	101	42	11	64	47	2.1	10	0.1	4.0	1.6	7.0	74	2.62	45	2.76	NW.	
Spring mean.....	40	52		28				4.1	24	1.5	4.9	12.4	.....	78	1.74	56	2.01	N.
June.....	63	76	107	51	30	71	58	3.6	13	1.0	5.5	0.0	0.0	78	3.78	50	3.99	E-W.	
July.....	69	82	106	56	37	76	65	2.2	10	1.9	4.2	0.0	0.0	76	4.36	42	4.32	N-W.	
August.....	67	81	107	53	34	73	63	1.7	7	1.1	2.4	0.0	0.0	76	3.81	40	3.86	N.	
Summer mean.....	66	80		53				7.5	30	4.0	12.1	0.0	.....	77	3.98	44	4.06	NW.
September.....	56	70	100	42	17	64	51	0.8	6	0.5	1.0	T.	1.0	74	2.53	46	2.92	NW.	
October.....	44	56	95	31	— 3	49	38	0.9	7	0.5	0.9	2.2	6.0	79	1.87	58	2.20	NW.	
November.....	25	35	69	15	— 29	38	7	0.6	7	0.3	0.7	6.9	10.0	81	0.96	73	1.18	W.	
Fall mean.....	42	54		29				2.3	20	1.3	2.7	9.1	.....	78	1.79	59	2.10	NW.
Annual mean.....	39	51	107	27	— 40			15.6	96	7.4	23.3	39.6	12.0	78	2.02	59	2.22	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 6-8, 22, 24.....	July 16, 25, 30.	1900	Feb. 8, 9.....	May 11, 27; June 21-24; July 26, 29, 31; Aug. 1, 2.
1895	Jan. 24; Feb. 3, 7.....	July 2, 4; Aug. 12, 15; Sept. 2.	1901	None.....	May 17, 18; July 12, 19, 22, 31; Aug. 16, 17, 26; Sept. 2.
1896	None.....	None.	1902	Feb. 4.....	None.
1897	Jan. 23, 24; Mar. 14.....	June 13, 14; July 27, 28; Aug. 11, 12.	1903	Feb. 14-18.....	July 22; Aug. 20.
1898	None.....	June 20; July 12; Aug. 19; Sept. 27.			
1899	Feb. 1, 7-12.....	None.			

NORTH DAKOTA.

North-Central Portion: BOTTINEAU COUNTY. Station: WILLOW CITY.

P. M. CUDHIE, Observer.

[Established by the Weather Bureau September, 1892. Latitude, 48° 35' N. Longitude, 100° 15' W. Elevation, 1,471 feet.]

This station is located about 4 miles northwest of Willow City and 5 miles south of Omamee, on nearly a level plain. The farm buildings at the station are sheltered on the north and west by a grove of cottonwoods. The thermometer shelter, furnished by the Weather Bureau, is 4½ feet above the ground and 90 feet west of a 1½-story dwelling house, the nearest building being a small repair shop, about 50 feet away.

The rain gage is 30 feet northeast of the house and about the same distance from a small clump of trees, about 12 feet high, on the northwest.

The mean temperature for this station has been calculated from the readings of the maximum and minimum thermometer.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	10	23	45	1	-40	13	1	0.7	2	0.0	0.7	3.4	4.0	NW.
January.....	2	14	48	-9	-47	16	-7	0.2	2	0.8	0.2	1.8	3.4	NW.
February.....	3	15	49	-10	-54	12	-5	0.5	2	0.4	T.	5.1	6.2	NW.
Winter mean.....	5	17		-6				1.4	6	1.2	0.9	10.3		NW.
March.....	16	29	65	4	-45	22	6	0.6	2	T.	0.3	3.0	4.0	NW.
April.....	41	55	88	28	-22	50	33	1.2	3	1.3	0.2	1.6	0.7	SE.
May.....	53	69	95	38	16	60	49	2.2	6	3.4	8.1	0.0	0.0	SE.
Spring mean.....	37	51		23				4.0	11	4.7	8.6	4.6		SE.
June.....	61	76	96	48	28	66	57	3.1	6	3.4	5.7	0.0	0.0	W.
July.....	66	82	101	51	30	70	63	2.1	3	2.7	0.9	0.0	0.0	NW.
August.....	65	80	104	48	27	69	62	1.6	3	2.0	2.4	0.0	0.0	NW.
Summer mean.....	64	79		49				6.8	12	8.1	9.0	0.0		NW.
September.....	54	70	100	37	11	62	47	2.0	3	1.0	T.	1.0	0.4	NW.
October.....	42	56	85	27	-2	47	36	0.7	2	T.	T.	0.5	6.2	NW.
November.....	18	32	75	10	-30	36	3	0.5	2	1.1	0.0	5.9	2.4	NW.
Fall mean.....	38	53		25				3.2	7	2.1	T.	7.4		NW.
Annual mean.....	36	50	104	23	-54			15.4	36	16.1	18.5	22.3		NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 6-9, 23, 24, 26, 27; Dec. 27.	July 11, 13-16, 21, 23, 24, 29; Aug. 5, 18-20, 30.	1899	Jan. 28.....	July 17.
1895	Jan. 8, 23-26, 27, 30; Feb. 1-4, 7, 8.	Sept. 2.	1900	Feb. 8-10.....	June 22, 23; Aug. 4, 7.
1896	Jan. 4; Dec. 2.....	July 11.	1901	Jan. 1, 2; Dec. 13-15...	May 17.
1897	Feb. 26, 28; Mar. 2, 14, 15.	July 15, 16; Sept. 3, 6, 7.	1902	Jan. 26, 27.....	None.
1898	Jan. 8, 11, 12, 18-22, 28-31.	None.	1903	Jan. 30; Feb. 14-18; Dec. 13.	July 22.

NORTH DAKOTA.

North Central Section: RAMSEY COUNTY. Station: CHURCHS FERRY.

H. D. ORVIS, Observer.

[Established by the Weather Bureau, May, 1892. Latitude, 48° 30' N. Longitude, 99° 10' W. Elevation, 1,458 feet.]

This station is located on the grounds of the Orvis House, where there are no buildings or trees to interfere with the exposure of the instruments.

The maximum and minimum thermometers are located 75 feet to the rear and north of the house in a standard cotton-region shelter. The rain gage is 8 feet west of the shelter.

The mean temperatures at this station have been calculated from the readings of the maximum and minimum thermometers.

Tabulated data are for the period of observation, January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	11	20	44	0	-33	16	-4	0.4	5	0.3	0.1	3.8	4.0	NW.
January.....	4	12	52	-6	-36	12	-7	0.5	5	0.7	0.2	5.7	3.0	NW.
February.....	2	13	55	-3	-44	12	-4	0.4	4	0.9	0.6	4.1	6.2	NW.
Winter mean.....	6	15		-3				1.3	14	1.9	0.9	13.6		NW.
March.....	17	27	65	6	-38	27	4	1.1	6	1.0	0.6	8.4	11.0	NW.
April.....	40	52	92	29	-16	49	33	1.7	6	1.2	1.3	2.0	2.5	NE.
May.....	54	69	98	41	18	60	50	1.9	7	0.6	2.2	0.2	0.6	NW.
Spring mean.....	37	49		25				4.7	19	2.8	4.1	10.6		NW.
June.....	63	76	100	50	27	70	56	3.6	10	3.0	4.2	0.0	0.0	SE.
July.....	67	82	102	53	35	71	64	2.4	6	2.8	2.8	0.0	0.0	SE.
August.....	65	80	103	50	30	69	62	3.0	6	1.0	3.1	0.0	0.0	SW.
Summer mean.....	65	79		51				9.0	22	6.8	10.1	0.0		SE.
September.....	54	69	100	41	12	64	48	1.7	4	0.4	3.4	0.0	0.0	NW.
October.....	42	55	84	31	8	48	38	1.7	4	1.0	4.7	0.4	2.5	NW.
November.....	21	30	74	11	-28	35	5	0.5	4	0.3	0.2	3.7	2.0	NW.
Fall mean.....	39	51		28				3.9	12	1.7	8.3	4.1		NW.
Annual mean.....	37	49	103	25	-44			18.9	67	13.2	23.4	28.3	11.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 7-9, 23, 24.....	June 12, 13; July 10, 15-17, 21, 29; Aug. 5, 18, 22, 25, 31.	1898	Feb. 7-11.....	July 12, 13.
1895	Jan. 23, 27; Feb. 1-5, 7, 8.....	Aug. 13; Sept. 2.	1899	Feb. 7-11.....	July 18.
1896	None.....	July 1, 10, 11.	1900	Feb. 8, 9.....	May 12; June 20-25.
1897	Jan. 24; Feb. 26, 28; Mar. 14, 15.	June 13, 14; July 16; Sept. 3, 8.	1901	Jan. 1, 2; Dec. 13, 14.	None.
			1902	Jan. 27; Feb. 4.....	Do.
			1903	Feb. 14-18.....	Aug. 17.

NORTH DAKOTA.

Northeastern Section: CAVALIER COUNTY. Station: MILTON.

H. O. SORENSON, Observer.

[Established by the Weather Bureau in November, 1891. Latitude, 48° 40' N. Longitude, 96° 10' W. Elevation, 1,596 feet.]

This station is near the southeastern limits of the village of Milton, and its surroundings are comparatively open, with no buildings or trees near. The country surrounding the village is level, or nearly so, there being no hills of consequence.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter, the shelter being fastened to the northwest wall of an office building one story high; the thermometers are 5 feet above the ground.

The rain gage is located in an open spot about 40 feet from the nearest building; the bottom rests upon the ground.

The mean temperature at this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	9	19	43	0	-36	13	-4	0.4	3	0.2	0.6	4.0	3.0	W.
January.....	1	11	40	-9	-39	9	-9	0.5	3	0.0	0.5	4.8	3.0	W.
February.....	2	13	55	-9	-48	8	-5	0.6	3	0.8	0.4	5.3	5.0	W.
Winter mean.....	3	14	.....	-6	.....	.....	.....	1.5	9	1.0	1.5	14.1	.....	W.
March.....	15	26	59	4	-34	25	4	1.3	5	0.5	1.7	7.3	8.0	N.
April.....	38	50	88	27	-8	46	32	2.5	6	1.8	8.5	4.3	8.0	N.
May.....	54	69	94	40	18	57	40	2.6	6	2.2	8.6	0.0	3.0	N.
Spring mean.....	36	48	.....	24	.....	.....	.....	6.4	17	4.5	18.8	11.6	.....	N.
June.....	64	77	99	50	25	69	50	3.6	9	1.9	5.1	0.0	0.0	S.
July.....	66	80	97	52	33	71	63	3.0	5	2.3	1.8	0.0	0.0	S.
August.....	63	76	98	50	31	67	60	2.2	6	2.6	2.9	0.0	0.0	W.
Summer mean.....	64	78	.....	51	.....	.....	.....	8.8	20	6.8	9.8	0.0	.....	S.
September.....	53	67	98	40	10	61	48	2.0	4	0.8	1.6	T.	T.	W.
October.....	40	52	80	28	7	48	34	1.2	4	0.1	0.0	0.8	2.0	W.
November.....	18	27	65	9	-24	33	7	0.6	3	0.9	2.0	5.1	5.0	N.
Fall mean.....	37	49	.....	26	.....	.....	.....	3.8	11	1.8	3.6	5.0	.....	W.
Annual mean.....	35	47	99	24	-48	.....	.....	20.5	57	14.1	33.7	31.6	8.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	None.....	Sept. 1.	1899	Jan. 28, 30; Feb. 7-11.	None.
1895	Jan. 23, 27; Feb. 1-8; Mar. 13.	None.	1900	Feb. 8, 9.....	June 23-25.
1896	Jan. 4.....	July 1, 10, 11.	1901	Dec. 12-14.....	None.
1897	Jan. 24; Feb. 26; Mar. 14, 15.	June 12, 13; July 16.	1902	Jan. 26, 27.....	Do.
1898	Jan. 7, 8, 28-30; Feb. 1, 3, 6, 8-11; Dec. 31.	July 13.	1903	Feb. 13-17.....	Do.

NORTH DAKOTA.

Western Section: DUNN COUNTY. Station: OAKDALE.

M. S. CUSKELLY, Observer.

[Established by the Weather Bureau April, 1893. Latitude, 47° 30' N. Longitude, 102° 50' W. Elevation, unknown.]

This station is about one-fourth of a mile from and on the east side of Kildeer Mountains, a range of hills some 6 miles long and rising near the station quite abruptly to a height of 850 feet. The station is in the timber, which extends half way up the side of the mountains. It is very seldom that snow lies for any length of time out in the open within a mile of the mountains, although it becomes quite deep in the brush between the station and the mountains. The maximum and minimum thermometers are exposed in a standard cotton-region shelter in the open, about 50 feet from a 1½-story house. The shelter opens toward the southwest; the bottom is about 4 feet above the ground.

The rain gage is near the shelter; the bottom is about 1 foot above the ground.

The mean temperature at this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	21	30	56	12	-27	27	18	0.6	5	0.7	1.6	2.9	4.0	NW.
January.....	16	26	59	6	-32	24	3	0.4	4	0.7	1.4	3.9	4.2	NW.
February.....	13	23	56	4	-41	23	2	0.7	5	1.4	0.6	7.6	5.0	NW.
Winter mean.....	17	26		7				1.7	14	2.8	3.6	14.4		NW.
March.....	23	32	66	13	-22	30	10	1.6	7	1.8	0.4	13.4	10.1	NW.
April.....	44	54	87	33	16	50	39	1.3	5	1.6	0.6	5.1	6.0	NW.
May.....	55	66	92	43	20	62	49	3.2	8	0.7	7.8	0.6	0.4	E., SE.
Spring mean.....	41	51		30				6.1	20	4.1	8.8	19.1		NW.
June.....	62	73	98	51	31	68	57	4.1	11	2.6	2.3	T.	T.	NW.
July.....	68	80	101	56	40	72	66	2.1	7	1.4	4.6	0.0	0.0	NW.
August.....	66	79	100	54	36	69	64	1.3	5	2.5	4.0	0.0	0.0	NW.
Summer mean.....	65	77		54				7.5	23	6.5	10.9	T.		NW.
September.....	56	67	93	45	24	66	51	1.2	4	0.3	1.9	T.	T.	NW.
October.....	45	55	78	35	4	50	41	0.6	3	0.4	0.4	2.1	0.6	NW.
November.....	26	36	72	17	-22	37	10	0.8	4	0.9	0.4	7.4	6.0	NW.
Fall mean.....	42	53		32				2.6	11	1.6	2.7	9.5		NW.
Annual mean.....	41	52	101	31	-41			17.9	68	15.0	26.0	43.0	10.1	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 23.....	July 10, 16, 24, 25, 30.	1899	Feb. 8, 11.....	None.
1895	None.....	None.	1900	None.....	June 20-23; July 26; Aug. 1, 2.
1896	do.....	July 11.	1901	do.....	July 19.
1897	Jan. 24.....	June 13; Aug. 12.	1902	do.....	None.
1898	Feb. 7, 8, 11.....	None.	1903	Feb. 15.....	Do.

NORTH DAKOTA.

Eastern Section: GRAND FORKS COUNTY. Station: UNIVERSITY.

G. W. STEWART, Observer.

[Established by the Signal Service June, 1891. Latitude, 47° 45' N. Longitude, 97° 05' W. Elevation 830 feet.]

This station is located at the University of North Dakota, 1 mile from the city limits of Grand Forks. The surrounding country is perfectly flat. Practically the only buildings in the vicinity of the station are those of the university.

The maximum and minimum thermometers are mounted on the east side of the main building, 8 inches from a window and 27 feet above the ground. Although located so near a building, there is an ample circulation of air. Directly to the east there are no buildings.

The rain gage is in the open, its top being 34 inches above the ground.

The mean temperature at this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.		Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	11	21	58	3	-33	20	2	0.6	4	0.6	0.6	4.2	5.0	NW.
January.....	4	16	50	-4	-33	14	-4	0.4	4	0.6	0.5	4.2	2.5	NW.
February.....	8	18	59	-4	-39	14	1	0.5	4	0.4	0.2	3.7	3.0	NW.
Winter mean....	8	18		-2				1.5	12	1.6	1.3	12.1		NW.
March.....	21	33	60	12	-28	31	8	0.7	5	0.8	0.5	4.5	4.0	NW.
April.....	42	55	85	33	13	50	31	2.8	7	3.0	5.6	2.9	6.0	NW.
May.....	55	68	95	43	17	58	33	2.6	8	9.0	8.0	T.	1.5	NW.
Spring mean....	39	52		29				6.1	20	4.7	14.1	7.4		NW.
June.....	63	73	98	50	32	68	59	3.7	9	3.8	3.2	0.0	0.0	NW.
July.....	68	79	97	55	38	70	64	2.2	8	0.9	0.6	0.0	0.0	NW.
August.....	65	77	93	52	33	71	62	2.5	8	1.7	2.5	0.0	0.0	S.
Summer mean....	65	76		52				8.4	25	6.4	6.3	0.0		NW.
September.....	54	66	98	42	22	57	51	1.9	6	1.2	1.4	0.0	0.0	NW.
October.....	44	55	88	33	9	50	30	1.5	5	3.0	1.1	0.4	6.0	NW.
November.....	23	34	71	14	-25	37	10	0.7	4	0.4	2.1	4.7	5.0	NW.
Fall mean.....	40	52		30				4.1	15	4.6	4.6	5.1		NW.
Annual mean...	38	50	98	27	-30			20.1	72	17.3	26.3	24.6	6.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year	Minimum below -30°.	Maximum 95° or above.	Year	Minimum below -30°.	Maximum 95° or above.
1898	Feb. 8-11.....	None.	1901	Dec. 12, 13.....	None.
1899	Feb. 8, 9.....	Do.	1902	Jan. 26.....	Do.
1900	None.....	May 12.	1903	Feb. 15.....	Do.

NORTH DAKOTA.

Western Section: STARK COUNTY. Station: DICKINSON.

R. L. DAVIDSON, Observer.

[Established by the Weather Bureau September, 1892. Latitude, 46° 50' N. Longitude, 102° 50' W. Elevation, 2,453 feet.]

This station is in the northwestern portion of the village, about three-fourths of a mile north of the Heart River and about one-half mile from a line of hills that bound the valley on the north. The maximum and minimum thermometers are exposed in a standard cotton region shelter 50 feet from the nearest building and are in no way sheltered by trees; the height of the shelter above ground is 4½ feet.

The rain gage is 20 feet north of the shelter and 40 feet from the nearest building or trees; the top is 4 feet above the ground.

The mean temperature for this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	18	29	53	8	-35	27	14	0.6	4	1.1	0.2	4.3	6.4	NW.
January.....	11	24	56	2	-35	25	2	0.3	2	0.9	0.9	3.4	3.5	NW.
February.....	12	22	56	0	-43	20	0	0.6	3	T.	0.6	4.0	32.0	NW.
Winter mean.....	14	25		3				1.5	9	2.0	1.7	11.7		NW.
March.....	23	37	71	11	-20	30	16	1.0	5	0.6	1.0	6.0	6.6	NW.
April.....	43	56	92	29	-3	50	38	1.6	4	0.4	2.4	2.5	2.0	NW.
May.....	54	70	106	40	18	63	45	2.0	5	2.9	5.2	1.1	0.9	SE.
Spring mean.....	40	54		27				4.6	14	3.9	8.6	9.6		NW.
June.....	62	77	105	49	28	69	58	2.2	9	1.4	2.5	0.0	0.0	NW.
July.....	69	85	108	53	29	74	52	2.1	7	1.9	1.6	0.0	0.0	NW.
August.....	67	83	110	51	24	71	61	1.9	7	0.5	0.6	0.0	0.0	E.
Summer mean.....	66	82		51				6.2	23	3.8	4.7	0.0		NW.
September.....	56	71	98	42	14	65	52	0.9	4	1.6	0.3	T.	T.	NW.
October.....	44	57	89	30	-5	50	38	0.7	4	0.4	0.7	2.0	11.5	NW.
November.....	25	36	74	14	-23	38	8	0.6	3	0.0	2.6	5.5	3.5	NW.
Fall mean.....	42	55		29				2.2	11	2.0	3.6	7.5		NW.
Annual mean.....	40	54	110	27	-43			14.5	57	11.7	18.6	28.8	32.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	None.....	Aug. 4, 5, 7, 25.	1900	None.....	May 11, 26-28; June 5, 21, 22, 24, 25; July 12, 17, 20, 21, 26, 29-31; Aug. 1, 2.
1895	Jan. 22; Feb. 6.....	July 4; Aug. 12, 15, 21; Sept. 2.	1901	do.....	May 16, 17; July 18, 19, 21-23, 27, 31; Aug. 16, 17, 19, 26; Sept. 2, 3.
1896	None.....	July 11; Aug. 31.	1902	do.....	None.
1897	Jan. 24.....	Sept. 2, 3, 6.	1903	do.....	July 22, 23, 27; Aug. 17.
1898	Feb. 7-11.....	June 20; July 12, 13; Aug. 15, 19, 21; Sept. 27.			
1899	do.....	July 21.			

NORTH DAKOTA.

Central Section: BURLEIGH COUNTY. Station: BISMARCK.

B. H. BRONSON, Section Director.

[Established September 10, 1874. Latitude, 46° 47' N. Longitude, 100° 38' W. Elevation, 1,670 feet.]

This station was established September 10, 1874, in a small frame building on the north side of Main street, west of Third, about one block from the present location, and remained there until July 2, 1877, when it was moved to the Sheridan House, two blocks northeast; on December 17, 1878, it was moved to the corner of First and Meigs streets, and on April 1, 1882, to the corner of Third and Main streets, where it remained until October 1, 1887, when it was moved to Camp Hancock (formerly a military post located in the city of Bismarck), the present location, where it has since remained, except from July 1, 1891, to June 1, 1894, when it was located in the First National Bank Building, corner of Fourth and Main streets.

The present location, Camp Hancock, is situated in the extreme southwest part of the city of Bismarck, and practically in the open country.

The thermometers and rain gage are located on the grounds surrounding the office, 50 feet away from the nearest objects; the thermometers, in a standard sod shelter, 15 feet above the ground. The top of the rain gage is 3 feet above the ground. The anemometer is on top of the office building, 35 feet above the ground.

Tabulated data are from the following periods of observation: Humidity, fifteen years, 1889-1903; sunshine, ten years, April, 1897, to December, 1903. Remainder of data is from the full period of observation—twenty-nine years—January 1, 1875, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 15	° F. 25	° F. 64	° F. 6	° F. -38	° F. 29	° F. -1	In. 0.7	9	0.7	0.9	In. 4.8	In. 6.5	P. ct. 78	Gr. 0.70	P. ct. 67	Gr. 0.79	143	46	NW.
January.....	7	17	52	-4	-44	24	-9	0.7	9	0.5	0.8	5.4	6.0	78	0.46	67	0.55	162	51	NW.
February.....	9	20	64	-1	-43	28	-5	0.6	9	1.5	1.4	4.9	8.0	79	0.46	69	0.55	197	56	NW.
Winter mean.....	10	21	60	0	-41	27	-5	2.0	27	2.7	3.1	15.1	.....	78	0.54	68	0.64	167	51	NW.
March.....	22	32	72	12	-36	31	8	1.0	8	0.6	3.3	7.7	9.5	79	0.78	66	1.07	230	53	NW.
April.....	43	54	90	32	-3	51	34	2.2	10	0.3	2.8	2.5	7.9	77	1.82	56	2.33	275	56	NW.
May.....	55	67	94	43	20	61	46	2.6	11	3.4	5.7	1.4	1.8	76	2.79	53	3.25	288	59	NW.
Spring mean.....	40	51	81	29	11	51	26	5.8	29	4.3	11.8	11.6	.....	77	1.80	58	2.20	264	56	NW.
June.....	64	75	98	53	31	69	58	3.6	13	1.0	1.2	0.0	0.0	81	4.20	59	4.86	330	60	NW.
July.....	70	82	106	58	32	75	64	2.6	11	2.0	1.5	0.0	0.0	80	4.91	53	5.28	270	60	NW.
August.....	68	81	105	55	32	73	62	2.1	8	0.5	6.6	0.0	0.0	74	3.84	43	4.02	227	66	E.
Summer mean.....	67	79	98	55	32	73	62	8.3	32	3.5	9.3	0.0	.....	78	4.32	52	4.72	280	65	NW.
September.....	57	70	102	45	10	67	53	1.0	6	0.5	5.6	0.0	0.0	78	2.96	52	4.78	202	63	NW.
October.....	44	56	89	33	-2	50	39	1.1	7	T.	0.3	0.8	5.8	82	1.92	63	2.39	139	60	NW.
November.....	26	37	73	16	-28	38	7	0.6	8	0.2	0.9	6.3	7.4	80	1.08	71	1.32	121	49	NW.
Fall mean.....	42	54	81	31	-18	48	26	2.7	21	0.7	6.8	7.1	.....	80	1.99	62	2.19	154	57	NW.
Annual mean.....	40	51	106	29	-44	51	26	18.8	109	11.2	31.0	33.8	9.5	78	2.16	60	2.44	218	57	NW.

* Also N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 7, 24.....	June 12; July 9-11, 15, 16, 21, 24-26, 29, 30; Aug. 5, 18, 22, 26, 31; Sept. 2.	1899	Feb. 7-11.....	July 19, 21, 22; Sept. 1.
1895	Jan. 23, 24; Feb. 3, 7, 8.	Aug. 15, 28. Sept. 2.	1900	Feb. 9.....	July 21, 26, 31; Aug. 1, 9.
1896	None.....	June 30; July 1, 11; Aug. 2, 28.	1901	None.....	July 12, 13, 19, 22, 23; Aug. 16, 27.
1897	Jan. 24; Mar. 14, 15.....	June 13; July 16, 17, 28; Sept. 2, 3, 7, 8.	1902	do.....	July 15, 28.
1898	None.....	June 20; July 5, 15, 26; Aug. 19, 20; Sept. 20.	1903	Feb. 15-18.....	July 6, 24; Aug. 17.

NORTH DAKOTA.

Central Section: STUTSMAN COUNTY. Station: JAMESTOWN.

D. S. MOORE, Observer.

[Established by the Weather Bureau December, 1892. Latitude, 46° 55' N. Longitude, 98° 45' W. Elevation, 1,395 feet.]

This station is located 2½ miles southeast of the village of Jamestown, on the banks of the James River. The valley is quite narrow, and the hills surrounding it are about 80 feet higher than the river, and about 100 feet from where the instruments are located.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter, which is located about 100 feet from the nearest building. The thermometers are 4½ feet above the ground.

The rain gage is 30 feet north of the shelter and 100 feet away from the nearest building, the top being 32 inches above the ground.

The mean temperature at this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	13	24	57	5	-31	24	7	0.7	4	0.3	0.3	6.4	7.5	NW.
January.....	10	19	54	-2	-38	17	1	0.5	4	0.6	1.0	4.6	7.0	NW.
February.....	11	18	65	-2	-40	18	1	0.6	4	0.4	0.8	5.9	6.0	NW.
Winter mean.....	10	20	.....	0	.....	.....	.....	1.8	12	1.3	2.1	16.9	.....	NW.
March.....	21	31	66	12	-28	53	7	1.1	5	T.	1.2	7.6	12.7	NW.
April.....	43	55	90	34	-8	62	36	1.9	7	1.2	6.2	3.5	1.0	NW.
May.....	56	68	96	43	22	62	50	2.8	6	4.5	9.6	0.0	0.0	NW.
Spring mean.....	40	51	.....	30	.....	.....	.....	5.8	18	5.7	17.0	11.1	.....	NW.
June.....	64	77	101	52	29	70	58	3.7	10	3.9	2.0	0.0	0.0	SE.
July.....	69	82	103	55	38	73	67	2.5	8	1.4	2.5	0.0	0.0	SW.
August.....	67	81	99	54	33	74	64	2.4	6	1.3	1.6	0.0	0.0	NW.
Summer mean.....	67	80	.....	54	.....	.....	.....	8.6	24	6.6	6.1	0.0	.....	NW.
September.....	57	71	94	43	20	63	53	1.8	5	0.3	3.1	0.1	T.	NW.
October.....	46	59	88	32	-6	51	42	1.0	5	T.	1.3	2.1	4.0	NW.
November.....	23	34	73	14	-20	29	10	0.8	3	1.6	3.5	5.5	2.0	NW.
Fall mean.....	42	55	.....	30	.....	.....	.....	3.6	13	1.9	7.9	7.7	.....	NW.
Annual mean.....	40	52	103	28	-40	.....	.....	19.8	67	15.5	33.1	35.7	12.7	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	None.....	June 12; July 11, 23-25, 31; Aug. 5.	1900	None.....	May 28; June 21-28; July 22, 28; Aug. 2, 11.
1895	Feb. 7.....	None.	1901	Dec. 14.....	July 14, 15, 24.
1896	None.....	Do.	1902	None.....	July 25.
1897	do.....	Do.	1903	Feb. 15, 16.....	July 25; Aug. 17.
1898	Jan. 27; Feb. 9-11..	June 23; July 17, 25.			
1899	Feb. 9.....	July 19-22.			

NORTH DAKOTA.

South-Central Section: McINTOSH COUNTY. Station: ASHLEY.

LAMOTTE MILES, Observer.

[Established by the Weather Bureau in January, 1892. Latitude, 46° 05' N. Longitude, 99° 25' W. Elevation, 2,001 feet.]

This station is located about 8 miles northeast of the village of Ashley, in the open country, in a valley surrounded by hills from 50 to 100 feet higher.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter, which is fastened to the north side of the house close to the northeast corner, and about 5 feet from the ground.

The rain gage is 30 feet east of the house, in the open and on ground a little higher. The top of the gage is 40 inches above the ground.

The mean temperature for this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 13	° F. 24	° F. 52	° F. 3	° F. -31	° F. 22	° F. 6	In. 0.3	7	In. 0.3	In. 0.3	In. 2.3	In. 5.0	NW.
January.....	9	19	53	- 3	-39	16	0	0.5	4	T. 0.2	T. 0.1	4.6	5.1	NW.
February.....	8	19	61	- 2	-48	18	1	0.9	3			4.7	3.0	NW.
Winter mean.....	10	21		- 1				1.7	14	0.5	0.4	11.6		NW.
March.....	22	32	69	8	-36	26	13	1.4	5	0.3	1.2	11.8	17.5	NW.
April.....	42	55	89	29	6	49	36	2.2	6	1.5	1.0	2.0	4.0	E.
May.....	54	70	97	39	18	61	45	1.9	6	2.4	4.2	T.	T.	SE.
Spring mean.....	39	52		25				5.5	17	4.2	6.4	13.8		NW.
June.....	63	78	102	50	22	68	58	3.5	10	0.7	4.3	T.	T.	E.
July.....	69	85	106	53	30	75	66	2.2	6	1.4	2.0	0.0	0.0	NW.
August.....	67	83	110	51	26	70	63	2.4	6	0.4	3.0	0.0	0.0	NW.
Summer mean.....	66	82		51				8.1	22	2.5	9.3	T.	T.	NW.
September.....	57	72	98	41	12	66	51	0.8	3	0.6	0.4	0.0	0.0	NW.
October.....	44	57	88	30	- 4	49	37	1.0	3	0.9	0.7	0.5	4.0	NW.
November.....	16	37	79	14	-20	36	21	0.5	2	0.4	0.6	3.8	1.0	NW.
Fall mean.....	39	55		28				2.3	8	1.9	1.7	4.3		NW.
Annual mean.....	39	53	110	26	-48			17.6	61	9.1	17.8	22.7	17.5	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 7, 24.....	June 13; July 10, 11, 23-26, 31; Aug. 5, 10, 12, 18, 31.	1899	Feb. 7.....	July 18-22.
1895	Feb. 1, 3, 7, 8.....	July 5, 28; Aug. 13, 21, 25; Sept. 2, 19.	1900	None.....	June 21, 25-27; July 21, 26, 30, 31; Aug. 1.
1896	None.....	July 10, 11, 28; Aug. 3, 28; Sept. 7, 8.	1901	Dec. 13, 14.....	July 12-14, 18, 19, 22, 23; Aug. 20.
1897	Feb. 26; Mar. 14, 15.....	May 17; July 19; Sept. 4.	1902	None.....	July 24.
1898	Feb. 6-9.....	June 24; July 6, 12-14, 16-18, 22, 27; Aug. 30.	1903	.....do.....	July 24.

NORTH DAKOTA.

Southeastern Section: LAMORE COUNTY. Station: BERLIN.

N. S. FRENCH, Observer.

[Established by the Signal Service July, 1890. Latitude, 46° 30' N. Longitude, 98° 20' W. Elevation, 1,470 feet.]

This station is 3 miles north and 1½ miles west of the village of Berlin. On the east, north, and west the land is gently rolling prairie, under cultivation.

The maximum and minimum thermometers are mounted, according to Weather Bureau instructions, in a standard cotton-region shelter, which is 60 feet northwest of a 1½-story dwelling. The bottom of the shelter is 3½ feet above the ground.

The rain gage is 12 feet west of the shelter, and the top is about 3 feet above the ground.

The mean temperature for this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	13	24	55	- 2	- 30	17	- 2	0.6	6	0.7	0.6	6.6	2.5	NW.
January.....	8	19	63	- 5	- 38	17	- 2	0.6	7	0.6	0.6	5.6	10.0	NW.
February.....	6	18	54	- 5	- 44	16	0	0.9	5	1.0	1.9	8.7	12.0	NW.
Winter mean.....	9	20	.....	- 2	.....	.....	.....	2.1	18	2.3	3.1	20.9	.....	NW.
March.....	22	33	68	10	- 41	27	7	1.4	8	1.3	1.4	13.5	18.0	NW.
April.....	42	57	85	29	- 18	50	34	2.3	9	2.9	5.1	3.8	3.0	NW.
May.....	52	67	99	58	- 10	57	46	1.8	9	0.7	4.0	T.	2.0	NW.
Spring mean.....	39	52	.....	26	.....	.....	.....	5.5	26	4.9	10.5	17.3	.....	NW.
June.....	62	76	101	47	23	68	57	3.7	13	1.5	3.2	0.0	0.0	NW.
July.....	67	83	104	52	36	71	64	2.7	10	1.5	1.3	0.0	0.0	NW.
August.....	66	81	102	51	29	70	62	3.6	10	0.7	4.6	0.0	0.0	NW.
Summer mean.....	65	80	.....	50	.....	.....	.....	10.0	33	3.7	9.1	0.0	.....	NW.
September.....	56	72	99	40	8	65	52	1.3	8	0.3	0.9	T.	T.	NW.
October.....	44	57	89	31	- 21	48	40	1.2	7	0.7	2.0	2.1	5.0	NW.
November.....	26	37	71	15	- 31	37	10	0.7	4	0.2	3.2	2.1	3.0	NW.
Fall mean.....	42	55	.....	29	.....	.....	.....	3.2	19	1.2	6.1	4.2	.....	NW.
Annual mean.....	39	52	104	26	- 44	.....	.....	20.8	96	12.1	28.8	42.4	18.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 7, 8, 24.....	June 2, 12, 13; July 11, 23, 25, 29; Aug. 22, 23, 25; Sept. 1, 2.	1899	Feb. 8, 9, 11.....	July 18, 19.
1895	Jan. 24; Feb. 1-4, 7, 8..	July 28; Aug. 1, 3, 13, 25; Sept. 19.	1900	Feb. 10.....	May 27; June 20, 21, 24, 25; July 1, 21; Aug. 1.
1896	Jan. 4; Mar. 13.....	July 10, 11, 28; Aug. 4, 23.	1901	Dec. 13-15, 19.....	July 13, 14, 19, 22, 23; Aug. 16.
1897	Jan. 24; Feb. 26.....	Sept. 3, 7.	1902	Jan. 27.....	July 24.
1898	Feb. 8, 9, 11.....	June 23; July 16; Aug. 15.	1903	Dec. 13.....	Do.

NORTH DAKOTA.

Southeast Section: RICHLAND COUNTY. Station: WAHPETON.

C. A. MCKEAN, Observer.

[Established by the Signal Service June, 1889. Latitude, 46° 25' N. Longitude, 96° 40' W. Elevation, 962 feet.]

This station is located in the city of Wahpeton at the head of the Red River Valley. The surrounding country is generally level. The maximum and minimum thermometers are exposed, according to Weather Bureau instructions, in a standard shelter at the west side of a two-story dwelling house, about 6 feet above the ground, the only favorable location for them.

The rain gage is 15 feet from a silver maple tree, and about 18 feet from the house; the top is 6 feet above ground.

The mean temperature for this station has been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	15	27	54	5	-32	24	5	0.4	3	0.4	0.2	2.2	7.5	NW.
January.....	11	22	51	0	-30	20	-1	0.4	4	0.4	0.4	3.2	4.0	NW.
February.....	11	22	58	-1	-44	19	1	0.6	3	T.	1.2	4.9	12.5	NW.
Winter mean.....	12	24		1				1.4	10	0.8	1.8	10.3		NW.
March.....	26	38	67	14	-33	35	16	1.2	5	1.9	1.8	8.2	8.5	NW.
April.....	46	60	92	33	-2	52	34	2.5	8	3.4	5.1	1.1	5.0	SE.
May.....	58	74	98	43	-22	62	50	2.2	8	1.0	7.4	0.0	0.0	SE.
Spring mean.....	43	57		30				5.9	21	6.3	14.3	9.3		SE.
June.....	67	81	101	53	27	70	61	3.4	9	2.6	5.8	0.0	0.0	SE.
July.....	70	85	105	55	39	74	67	3.6	7	0.2	4.8	0.0	0.0	SE.
August.....	68	82	96	54	33	74	66	3.1	8	2.0	2.7	0.0	0.0	SE.
Summer mean.....	68	83		54				10.1	24	4.8	13.3	0.0		NW.
September.....	59	72	98	46	19	67	54	1.7	6	0.8	2.7	0.0	0.0	NW.
October.....	47	59	88	35	13	52	42	1.8	6	2.3	0.5	1.8	0.7	NW.
November.....	27	38	72	17	-25	39	15	0.4	4	0.7	0.8	2.7	6.0	NW.
Fall mean.....	44	56		33				3.9	16	3.8	4.0	4.5		NW.
Annual mean.....	42	55	105	30	-44			21.3	71	15.7	33.4	24.1	12.5	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	None.....	May 13; June 12; Sept. 1.	1899	Feb. 8, 9, 11.....	July 18-20, 22.
1895	Feb. 1, 3, 4, 7, 8.....	None.	1900	None.....	May 11, 12, 27; June 20, 24-26; July 26, 30, 31; Aug. 1, 3, 4, 7, 8.
1896	None.....	Do.	1901	Dec. 14.....	May 17; July 13, 14, 19, 20, 23, 24; Aug. 20.
1897	Feb. 26; Mar. 15.....	May 16; June 13, 14; July 1, 7, 8; Sept. 3, 5.	1902	None.....	July 24, 29.
1898	Feb. 17.....	June 20, 23; July 12, 13, 16, 26; Aug. 20; Sept. 1.	1903	Feb. 14, 16.....	None.

SOUTH DAKOTA.

By SAMUEL W. GLENN,
Local Forecaster.

SOUTH DAKOTA.

Topography.—Topographically, all of the State except the Black Hills district, where a maximum elevation in excess of 7,000 feet is reached, might be considered only with regard to the principal water courses and valleys, as it is practically all prairie country of more or less undulating tendency, with an average elevation of about 2,000 feet and an average increase in elevation of about 875 feet between the extreme southeast and extreme northwest corners. At Brookings, in the Big Sioux River valley, the elevation is 1,633 feet; at Huron, in the James River valley, 1,285; at Pierre, in the Missouri River valley, 1,460; at Highmore, on the divide between the Missouri and James rivers, 1,890, and at De Smet, on the divide between the James and Big Sioux rivers, 1,726, the towns named lying in nearly the same latitude. It may be said that the physical features, except in the Black Hills district, are not such as to materially affect the climate of one section as compared with another. There, doubtless, is more snowfall and probably more rain in the more elevated portions of the Black Hills district than in its valleys; but here agriculture is confined to the valleys and is to a large extent overshadowed by very extensive mining interests.

Temperature.—The average annual temperature is about 45° Fahrenheit. January is the coldest month, with an average of about 13°. July is the warmest month, with an average of about 72°. The northeastern portion of the State is coldest. The area bounded on the north by the Cheyenne River, on the east by the Missouri River, and on the west by the southern portion of the Black Hills region, is probably the warmest portion, particularly in the winter season, when this district, as well as the valleys in the Black Hills region, are affected to more or less extent by the "chinook" winds so common in Montana. In nearly all monthly and annual mean temperature charts the isotherms trend from the southeast to the northwest. Latitude considered, steady winter weather does not usually set in until far into November, and generally the months of October and November are characterized by the absence of sufficient precipitation to interfere with late field work. As would naturally be supposed from the altitude, latitude, and distance from the sea the monthly and annual ranges of temperature are of a decided character.

The average temperature compares favorably with that of Minnesota, Wisconsin, Michigan, and northern Iowa. The winters are a little longer, as a rule, than in Wisconsin, Michigan, and Iowa, but it is often the case that preparation of ground for spring work is possible earlier than in those States, because of the light winter precipitation and no excess of moisture when the frost is leaving the soil.

The first killing frost, or temperature of 32°, in autumn, may be expected in the northern portion of the State within the second decade of September, and in the southern portion within the second or third decades of the same month.

The last killing frost, or temperature of 32°, in spring, may be expected in all parts of the State as late as the second decade of May.

Precipitation.—The average annual precipitation, determined from data contained in the appended tables, is about 20.3 inches. Of this, 1 to 2 inches occur during the winter, 6 to 7 inches during the spring, 8 to 9 inches during the summer, and 3 to 4 inches during the autumn months. Between 15 and 16 inches, or about three-fourths of the annual amount, occurs from March to August, inclusive. As a rule, the largest amount occurs in the lower James and Sioux River valleys, and the smallest, it is thought, over the north-central and extreme northwestern portions of the State; there are, however, but little precipitation data available covering the region lying between the Missouri River and the eastern border of the Black Hills region. There are of course exceptional winters, such as in the years 1880-81 and 1896-97, when the snowfall is heavy and its accumulated depth on the ground reaches decided proportions, but generally the winter precipitation is comparatively light.

During the seeding and growing season the average precipitation, except west of the Missouri River, compares favorably with that of northwestern Iowa and western Minnesota, though the rains, particularly in July and August, are liable to be more local in character than in those States. During March and April, and sometimes in September, the precipitation may be steady, though not continuously liberal in amount, for a day or two at a time. During summer the rains are of short duration and are followed closely by clear weather, and oftenest occur in the late afternoon or in the night.

Because of the increasing capacity of the cultivated areas to resist the effects of dry weather, there is a growing opinion entertained by some persons who have not closely studied the climatic conditions, that the rainfall is increasing. This supposition does not appear to be borne out by the facts, and it is highly probable that there has been neither increase nor decrease, to any material extent, in the average amount of precipitation on the plains of the Northwest since their settlement. Severe droughts have occurred in the past and are liable to occur again. The ability of the soil to withstand drought better than formerly can be accounted for from the fact that earlier in the history of the State there was but little cultivated land, and the native grass sod was so compact that a very large proportion of the rainfall and melted snow was not absorbed by it, but ran off into the "draws," "sloughs," and water courses. The greatly increased area of cultivated land has afforded opportunity for the ground to absorb and conserve the water, and thereby create a reservoir of moisture beneath the surface soil upon which the crop roots can draw in case of need during dry periods. "Sloughs" are now uncommon, whereas in the early eighties they were numerous.

Severe snowstorms, commonly known as "blizzards," have occurred in the past and are liable to occur again, but the frequency of their occurrence is far below what is generally supposed by the uninformed. Unfortunately there is a tendency on the part of some sensationally inclined newspaper correspondents to accord the dignity of a blizzard to some of the most ordinary snowstorms.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Armstrong (see Cherry Creek).		Cheyenne River valley		Lawrence	Spearfish	Black Hills region	493
Aurora (see Kimball).		James River valley		Lugentzel (see Rosebud).		White River valley	
Beadle	Huron	do	498	Lincoln (see Sioux Falls).		Sioux River valley	
Bon Homme	Tyndall	Missouri River valley	508	Lyman	Hotch City	Missouri River valley	501
Brookings	Brookings	Big Sioux River valley	499	McCook (see Alexandria).		James River valley	
Boreman (see Bowdle).		Missouri River valley	491	McPherson (see Aberdeen).		do	
Brown	Aberdeen	James River valley	502	Marshall (see Aberdeen).		Big Sioux River valley	
Brule	Kimball	Missouri River valley		Mende (see Rapid City).		Black Hills region	
Buffalo (see Kimball).		do		Meyer	Rosebud	White River valley	506
Butte	Ashcroft	Northwestern plateau	489	Miner (see Alexandria).		James River valley	
Campbell (see Bowdle).		Missouri River valley		Munichahala	Sioux Falls	Big Sioux River valley	504
Charles Mix	Greenwood	do	507	Moody (see Brookings).		do	
Clark (see Redfield).		James River valley		Pennington	Rapid City	Black Hills region	500
Clay (see Tyndall).		do		Potter (see Bowdle).		Missouri River valley	
Codington (see Gary).		Big Sioux River valley		Pratt (see Rosebud).		White River valley	
Custer (see Rapid City).		Black Hills region		Presho (see Hotch City).		do	
Davison (see Alexandria).		James River valley		Roberts (see Milbank).		Big Sioux River valley	
Day (see Milbank).		Big Sioux River valley		Sanborn (see Huron).		James River valley	
Deuel	Gary	Sioux River valley	497	Schnasse (see Ashcroft).		Northwestern plateau	
Dewey (see Cherry Creek).		Missouri River valley		Shannon (see Oelrichs).		White River valley	
Douglas (see Greenwood).		do		Spink	Redfield	James River valley	496
Edmunds	Bowdle	do	490	Stanley	Cherry Creek	Cheyenne River valley	494
Fall River	Oelrichs	Black Hills region	505	Sterling (see Cherry Creek).		do	
Faulk (see Redfield).		James River valley		Sully (see Pierre).		Missouri River valley	
Grant	Milbank	Big Sioux River valley	492	Tripp (see Rosebud).		White River valley	
Gregory (see Greenwood).		Missouri River valley		Turner (see Sioux Falls).		Big Sioux River valley	
Hamlin (see Brookings).		Big Sioux River valley		Union (see Tyndall).		Missouri River valley	
Hand (see Huron).		James River valley		Walworth (see Bowdle).		do	
Hanson	Alexandria	do	503	Washington (see Oelrichs).		White River valley	
Hughes	Pierre	Missouri River valley	495	Yankton (see Tyndall).		Missouri River valley	
Hutchinson (see Alexandria).		James River valley					
Hyde (see Pierre).		Missouri River valley					
Jackson (see Rosebud).		White River valley					
Kingsbury (see Huron).		James River valley					
Lake (see Brookings).		Big Sioux River valley					

STATE SUMMARY.

Station.	Number.	Temperature.				Date.	Absolute minimum.	Date.	Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.				Maximum above 59°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Ashcroft	1	44	60	28	114	August, 1900.	-44	January, 1893.	32	193
Bowdle	2	42	55	28	114	do.	-39	February, 1899.	29	188
Aberdeen	3	42	55	29	111	do.	-46	February, 1895.	25	182
Milbank	4	43	55	30	107	July, 1894.	-38	February, 1893.	17	173
Spearfish	5	46	56	36	105	July, 1890.	-30	January, 1893.	15	136
Cherry Creek	6	46	62	30	115	August, 1900.	-41	February, 1899.	51	185
Pierre	7	47	58	35	110	do.	-39	do.	35	156
Redfield	8	43	57	29	106	August, 1901.	-40	do.	21	186
Gary	9	43	55	31	108	September, 1895.	-39	February, 1895.	22	167
Huron	10	44	55	31	108	do., 1901.	-43	January, 1887.	19	173
Brookings	11	43	56	30	104	July, 1894.	-41	February, 1899.	14	183
Rapid City	12	46	59	34	106	August, 1900.	-34	do.	20	153
Hotch City	13	45	60	31	110	August, 1892.	-41	do.	38	168
Kimball	14	45	58	31	110	July, 1894.	-38	do.	27	163
Alexandria	15	45	59	31	110	do.	-38	do.	31	175
Sioux Falls	16	44	56	32	108	do.	-42	do.	20	164
Oelrichs	17	46	61	32	110	June, 1893.	-42	December, 1901.	44	174
Rosebud	18	46	61	32	109	July, 1902.	-35	February, 1899.	42	164
Greenwood	19	49	61	37	111	July, 1894.	-29	do.	37	147
Tyndall	20	47	60	35	108	do.	-33	do.	29	150

STATE SUMMARY—Continued.

Station.	Num- ber.	Frost.				Precipitation				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Ashcroft.....	1	Sept. 10	May 22	Aug. 27	June 20	<i>Inches.</i> 14.0	<i>Inches.</i> 5.0	<i>Inches.</i> 5.7	<i>Inches.</i> 2.0	<i>Inches.</i> 1.3
Bowdle.....	2	Sept. 16	May 19	Sept. 8	....do....	18.5	5.8	9.0	2.7	1.0
Aberdeen.....	3	Sept. 10	May 23	Aug. 23	June 21	25.9	8.6	10.5	4.3	2.5
Milbank.....	4	Sept. 23	May 18	Sept. 11	June 11	20.6	6.6	8.9	3.6	1.5
Spearfish.....	5	Sept. 27	May 4	....do....	June 21	21.8	8.2	7.7	3.0	2.9
Cherry Creek.....	6	Sept. 20	May 25	Sept. 7	June 26	13.3	3.5	7.3	2.0	0.5
Pierre.....	7	Sept. 30	Apr. 29	Sept. 12	May 19	16.7	5.3	7.5	2.3	1.6
Redfield.....	8	Sept. 18	May 21	Sept. 10	June 21	20.5	5.2	10.2	4.3	0.8
Gary.....	9	Sept. 17	May 18	Aug. 23	June 28	22.7	8.1	8.6	4.5	1.5
Huron.....	10	Sept. 18	May 14	....do....	June 21	20.5	6.4	8.9	3.6	1.6
Brookings.....	11	Sept. 12	May 23	....do....	June 22	19.5	5.9	8.6	3.6	1.4
Rapid City.....	12	Sept. 20	May 1	Sept. 13	May 20	16.2	6.2	6.9	1.9	1.2
Hotch City.....	13	....do....	May 18	Sept. 12	June 21	15.0	5.3	7.1	1.7	0.9
Kimball.....	14	Sept. 27	May 6	....do....	May 30	18.2	5.7	8.6	2.8	1.8
Alexandria.....	15	Sept. 14	May 16	Aug. 23	June 21	24.6	8.2	10.0	4.6	1.8
Sioux Falls.....	16	Sept. 17	May 10	....do....	May 25	24.2	8.8	9.6	4.0	1.8
Oelrichs.....	17	Sept. 20	....do....	Sept. 9	May 27	19.3	7.1	6.1	3.0	3.1
Rosebud.....	18	Sept. 22	May 11	Sept. 10	May 30	18.3	6.1	7.3	2.3	2.6
Greenwood.....	19	Sept. 24	Apr. 27	Sept. 12	May 20	23.0	7.2	10.0	4.3	1.5
Tyndall.....	20	Sept. 23	May 6	Aug. 23	May 30	22.8	7.6	9.7	3.9	1.6

SOUTH DAKOTA.

Northwestern Plateau: BUTTE COUNTY. Station: ASHCROFT.

THOMAS ASHCROFT, Observer.

[Established by Weather Bureau in July, 1892. Latitude, 45° 38' N. Longitude, 103° 56' W. Elevation, 3,192 feet.]

This station is situated on the west side of the Little Missouri River, near the Montana line, and about 10 miles north of Camp Crook. The instruments are very favorably located on high ground, free from any obstruction, and in the open country. The thermometers (maximum and minimum) are exposed in a shelter constructed by the observer and conforming closely to the plan of the standard Weather Bureau shelter. The rain gage is far distant from any obstructions; its top is 4 feet above the ground. The surrounding country back from the river is rolling prairie.

The mean temperature was obtained from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	24	37	69	10	-33	34	18	0.4	3	0.3	0.0	3.7	3.0
January.....	19	34	63	1	-44	29	10	0.5	5	0.6	0.4	5.0	3.0
February.....	18	34	67	3	-40	28	8	0.4	4	0.5	0.5	3.7	3.0
Winter mean.....	20	35		6				1.3	12	1.4	0.9	12.4	
March.....	27	42	82	12	-33	33	17	1.5	7	1.5	1.3	13.5	6.0
April.....	45	60	94	30	-12	50	37	1.2	5	1.3	1.5	2.3	4.0
May.....	56	72	98	40	16	63	50	2.3	7	1.7	1.9	0.1	0.5
Spring mean.....	43	58		27				5.0	19	4.5	4.7	15.9	
June.....	64	79	107	48	24	70	60	2.9	10	1.1	4.5	0.0	0.0
July.....	70	87	110	54	32	76	68	1.5	7	0.7	3.6	0.0	0.0
August.....	69	87	114	52	30	72	67	1.2	6	1.1	1.0	0.0	0.0
Summer mean.....	68	84		51				5.6	23	2.9	9.1	0.0	
September.....	58	76	105	40	11	67	54	1.0	5	0.1	2.4	0.4	3.0
October.....	46	64	92	28	-2	51	41	0.5	4	0.5	0.5	1.7	3.0
November.....	30	45	80	15	-26	40	16	0.5	4	1.1	1.9	4.9	9.0
Fall mean.....	45	62		28				2.0	13	1.7	4.8	7.0	
Annual mean.....	44	60	114	28	-44			13.9	67	10.5	19.5	35.3	9.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	None.....	July 10, 16, 24, 25, 29, 30; Aug. 4, 6, 7, 22, 26, 27, 31; Sept. 26.	1899	Feb. 2, 10, 11.....	July 9, 10, 12, 19-22, 24; Aug. 21; Sept. 1, 3.
1895	Feb. 6.....	July 4, 27, 31; Aug. 3, 7, 11, 12, 15, 21, 24, 25; Sept. 1, 2, 19.	1900	None.....	May 26, 27; June 5, 8, 21-26, 30; July 12, 17, 21, 28, 29-31; Aug. 1, 2, 30, 31; Sept. 4, 6.
1896	None.....	June 20; July 11; Aug. 2, 6, 28, 29.	1901	.....do.....	May 16, 17; July 3, 6, 7, 11-13, 16, 18-20, 22, 23, 31; Aug. 13, 16, 17; Sept. 2.
1897	Mar. 12; Dec. 2.....	June 13; July 1, 15-17, 26-28, 31; Aug. 12, 22, 24, 25, 27, 28; Sept. 2, 3, 6-8, 11, 22, 25, 27.	1902	.....do.....	July 15, 24.
1898	None.....	June 20; July 5, 11, 12, 14, 15, 21, 25; Aug. 14, 15, 19-21, 25, 27, 28; Sept. 1, 20, 26, 27.	1903	Feb. 15.....	July 6, 19, 20, 26; Aug. 16, 17, 20-22.

SOUTH DAKOTA.

Missouri River Valley: EDMUNDS COUNTY. Station: BOWDLE.

C. T. SMITHERS, Observer.

[Established by Weather Bureau in May, 1892. Latitude, 45° 27' N. Longitude, 99° 39' W. Elevation, 1,995 feet.]

The maximum and minimum thermometers at this station are exposed in a standard Weather Bureau shelter erected on posts 4 feet high, in an open space on the north side of a one-story building near the business portion of the town. The rain gage is exposed on the residence grounds of the observer, 90 feet east of a one-story dwelling, and practically in the open country. The top of the gage is 4 feet above the ground. The surrounding country is gently rolling prairie.

Prior to January, 1896, the mean temperature was obtained from the 7 a. m., 2 p. m., and 9 p. m. observations; after that time from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- mum.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	16	26	57	5	-29	27	9	0.4	2	0.1	0.4	3.2	4.0
January.....	11	27	64	3	-31	21	1	0.3	2	0.4	T.	2.6	3.0
February.....	11	23	61	-2	-39	18	6	0.3	1	0.0	T.	2.9	4.0
Winter mean.....	13	25		2				1.0	6	0.5	0.4	8.7	
March.....	27	38	70	12	-25	31	20	1.8	4	2.8	0.7	10.7	15.0
April.....	45	58	90	31	4	54	37	2.0	6	2.6	1.1	2.3	4.0
May.....	57	70	99	42	23	61	51	2.0	6	0.4	0.6	0.0	0.0
Spring mean.....	43	55		23				5.8	16	5.8	2.4	13.0	
June.....	66	78	101	50	28	72	59	3.9	10	3.7	5.5	0.0	0.0
July.....	71	87	103	55	33	76	68	2.1	6	1.1	3.0	0.0	0.0
August.....	70	85	114	54	32	74	67	3.0	7	1.1	1.9	0.0	0.0
Summer mean.....	69	83		53				9.0	23	5.9	10.4	0.0	
September.....	58	70	101	40	15	62	53	1.3	4	1.1	4.2	0.5	4.0
October.....	46	60	90	31	0	51	38	1.0	3	1.7	2.1	1.1	2.0
November.....	27	38	78	14	-19	37	20	0.4	2	T.	0.1	2.4	3.0
Fall mean.....	44	56		28				2.7	9	2.8	6.4	4.0	
Annual mean.....	42	55	114	28	-39			18.5	54	15.0	19.6	25.7	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	Jan. 24.....	None in June or Aug.; July record in- complete.	1899	Jan. 29; Feb. 7, 8, 10, 11.	July 18, 19, 21, 22, 25.
1895	Feb. 7. (No record after Oct.)	July 4, 5; Aug. 4.	1900	None.....	June 22, 26; July 22, 27, 31; Aug. 1-4, 8.
1896	No record.....	No record.	1901	do.....	July 8, 12-14, 18-20, 22-24; Aug. 1, 16, 20.
1897	do.....	Do.	1902	do.....	June 9; July 24, 28, 29; Aug. 1; Sept. 7.
1898	None in Jan. or Feb. (Dec. record mis- sing.)	June 18, 20, 23; July 5, 15-17, 21, 26; Aug. 14, 15, 19, 20, 27, 29; Sept. 1.	1903	do.....	May 15; June 28; July 6, 23; Aug. 17, 21. (Aug. 22-31 missing.)

SOUTH DAKOTA.

James River Valley: BROWN COUNTY. Station: ABERDEEN.

D. G. GALLETT, Observer.

[Established by Signal Service March, 1890. Latitude, 45° 27' N. Longitude, 98° 20' W. Elevation, 1,300 feet.]

This station is near the southeastern limits of the residence portion of the city, at the home of the observer. The surrounding country is gently undulating prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter erected on posts 4 feet high and about 25 feet distant from the two-story residence of the observer. The rain gage is exposed 30 feet distant from any obstruction, with its top 6 feet above the ground.

The mean temperatures were calculated from the daily maximum and minimum.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	In.		In.	In.	In.
December.....	17	27	60	7	-28	31	8	0.8	2	1.0	0.4	4.9
January.....	11	22	58	0	-34	21	-2	0.9	3	0.1	5.4	6.3
February.....	11	22	65	-1	-46	20	4	0.8	3	0.6	2.4	5.9
Winter mean.....	13	24		2				2.5	8	1.7	8.2	17.1
March.....	23	35	72	12	-32	33	12	2.3	5	0.4	7.6	11.1
April.....	45	57	95	32	0	53	38	3.5	7	2.5	3.4	2.6
May.....	57	72	96	42	15	63	49	2.8	7	1.6	0.3	0.4
Spring mean.....	42	55		29				8.6	19	4.5	11.3	14.1
June.....	66	81	104	52	28	70	61	4.3	9	2.8	4.4	0.0
July.....	72	87	107	57	36	77	66	3.1	6	1.6	4.8	0.0
August.....	70	84	111	54	28	75	64	3.1	6	0.6	3.6	0.0
Summer mean.....	69	84		54				10.5	21	5.0	12.8	0.0
September.....	59	75	102	43	18	68	52	1.7	4	1.6	2.2	T.
October.....	46	60	91	31	0	52	40	1.7	4	1.9	0.7	0.4
November.....	26	37	75	16	-25	35	10	0.9	4	1.3	0.3	3.8
Fall mean.....	44	57		30				4.3	12	4.8	3.2	4.2
Annual mean.....	42	55	111	29	-46			25.9	60	16.0	35.5	35.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	January and February missing.	May and June missing; July 11, 12, 16, 18, 23-26, 29, 30; Aug. 5; Sept. 2.	1898	January missing	June 23, 28; July 4, 16, 26; Aug. 14, 27, 30, 31; Sept. 1, 2.
1895	Jan. 24; Feb. 1, 3, 4, 7, 8.	July 4, 15, 31; Aug. 2, 4, 13, 21, 26; Sept. 2, 16, 17, 19.	1899	Feb. 8, 9, 12.	July 17-19, 21, 22, 24, 25, 27; Aug. 19.
1896	None.	July 4, 5, 10-12, 14, 18-20, 29; Aug. 1, 2, 6, 28; Sept. 7.	1900	None.	June 21, 28; July 13, 20, 28-30; Aug. 1-3.
1897	Jan. 23; Mar. 14.	May 16; June 12, 13; July 8, 28; Sept. 2, 3, 7, 8.	1901	do.	July 8, 12-15, 17, 19-24; Aug. 2, 7, 27.
			1902	Jan. 28.	July 12, 24, 29.
			1903	Feb. 16-18.	July 6, 7, 20, 24; Aug. 17, 21.

SOUTH DAKOTA.

Big Sioux River Valley: GRANT COUNTY. Station: MILBANK.

E. J. HINMAN, Observer.

[Established by Signal Service December, 1899. Latitude, 45° 15' N. Longitude, 96° 38' W. Elevation, 1,148 feet.]

This station is at the home of the observer, in the residence portion of the town. The surrounding country is nearly level prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, erected on posts 3 feet high, and located 40 feet from a one-story building. The rain gage is about 10 feet west of the shelter, its top being 30 inches above the ground.

Prior to May, 1893, the mean temperature was obtained from the 7 a. m., 2 p. m., and 9 p. m. observations; thereafter from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Aver- age depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	19	29	60	8	-30	29	12	0.5	3	T.	0.7	3.5	6.0
January.....	13	22	63	2	-31	27	3	0.4	3	0.6	0.1	2.9	5.0
February.....	12	23	60	2	-38	18	6	0.6	3	T.	1.4	7.3	10.0
Winter mean.....	15	25		4				1.5	9	0.6	2.2	13.7	
March.....	26	36	77	16	-24	34	14	1.5	5	2.5	0.5	10.8	12.0
April.....	45	57	88	32	5	56	40	2.2	7	3.7	4.0	0.5	(7)
May.....	57	70	95	44	26	65	47	2.9	■	0.5	8.1	0.0	0.0
Spring mean.....	43	54		31				6.6	20	6.7	12.6	11.3	
June.....	66	78	98	52	■	72	61	3.7	10	2.1	2.9	0.0	0.0
July.....	71	85	107	57	40	77	68	2.6	7	T.	3.8	0.0	0.0
August.....	69	83	106	54	34	75	65	2.6	■	0.8	6.3	0.0	0.0
Summer mean.....	69	82		54				8.9	23	2.9	13.0	0.0	
September.....	61	75	103	■	15	67	56	1.8	■	1.7	0.1	0.0	0.0
October.....	48	63	95	35	5	56	42	1.3	■	2.3	0.3	T.	T.
November.....	29	40	80	17	-20	40	16	0.5	3	0.1	0.6	3.4	8.0
Fall mean.....	46	59		33				3.6	12	4.1	1.0	3.4	
Annual mean.....	43	55	107	30	-38			20.6	64	14.3	28.8	28.4	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	None.....	June 12, 13, 29, 30; July 11, 15-18, 22, 23, 25, 28-31; Aug. 6, 8, 22, 27 (September incomplete).	1899	Feb. 8, 9, 11.....	July 19, 20, 22.
1895	do.....	July 5; Aug. 1, 12; Sept. 16, 18.	1900	None.....	July 2, 31; Aug. 2-5.
1896	January missing.....	Aug. 3, 4, 7.	1901	do.....	June 28; July 8, 13-15, 20, 21, 23-25; Aug. 2, 17, 18.
1897	None.....	Sept. 3, 7, 12.	1902	do.....	July 13, 24, 30; Aug. 2; Sept. 8.
1898	do.....	June 21; Aug. 31; Sept. 1, 2.	1903	December missing.....	July 7.

SOUTH DAKOTA.

Black Hills District: LAWRENCE COUNTY. Station: SPEARFISH.

Prof. F. L. Cook, Observer.

(Established by Signal Service January, 1890. Latitude, 44° 29' N. Longitude, 103° 52' W. Elevation, 3,647 feet.

This station is at the State Normal School, 1 mile from the post-office and practically in the open country.

The thermometers (maximum and minimum) are exposed in an instrument shelter constructed on the plan of the Weather Bureau shelters and are the property of the school. The bottom of the shelter is 8 feet above the ground. It is located in open ground about 10 rods northeast of the school building. The rain gage is 2 rods distant from the shelter and 10 rods from the school building or any other obstruction. The top of the gage is about 4 feet above the ground.

Prior to January, 1894, the mean temperature was obtained from the 7 a. m., 2 p. m., and 9 p. m. observations; thereafter from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Aver- age depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	31	38	71	22	-17	30	23	0.9	5	0.4	1.5	8.9	15.0
January.....	25	35	65	18	-30	34	15	1.0	5	0.3	0.5	9.2	10.0
February.....	21	30	67	12	-30	32	8	1.0	6	0.4	0.8	10.6	13.0
Winter mean.....	26	34		17				2.9	16	1.1	2.8	28.7	
March.....	30	39	80	31	-20	39	20	2.2	7	1.1	4.0	20.9	24.0
April.....	46	55	88	35	1	50	16	3.0	7	1.1	5.6	14.6	20.0
May.....	55	65	93	44	24	61	47	3.0	8	3.6	3.1	1.2	6.0
Spring mean.....	44	53		33				8.2	22	5.8	12.7	36.7	
June.....	64	74	105	52	33	69	59	4.1	9	1.4	2.3	0.0	0.0
July.....	71	82	105	58	43	76	68	2.0	6	1.9	3.0	0.0	0.0
August.....	70	82	104	58	40	74	67	1.6	5	0.1	3.7	0.0	0.0
Summer mean.....	68	79		56				7.7	20	3.4	9.0	0.0	
September.....	60	72	97	49	26	68	54	1.1	4	0.6	3.9	0.8	6.0
October.....	49	60	90	38	17	53	43	1.3	4	0.8	0.4	2.3	6.0
November.....	35	43	79	25	-11	44	21	0.6	4	0.2	0.6	5.8	6.0
Fall mean.....	48	58		37				3.0	12	1.6	4.9	8.9	
Annual mean.....	46	56	105	36	-30			21.8	70	11.9	29.4	74.3	24.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 96° or above.	Year.	Minimum below -20°.	Maximum 96° or above.
1894	Jan. 23.....	July 10, 24, 25, 31; Aug. 6, 21, 28.	1898	None.....	Aug. 18, 20.
1895	Feb. 7. (No record after July.)	No record after July.	1899	Feb. 1-4, 10-12.....	July 21, 22.
1896	No record prior to October. None in December.		1900	Feb. 15.....	June 20; July 12, 31; Aug. 1, 28, 30.
1897	None.....	Sept. 7.	1901	None.....	July 7, 12, 13, 19, 22, 31.
			1902	Jan. 26.....	July 15, 31.
			1903	None.....	None.

SOUTH DAKOTA.

Cheyenne River Valley: STANLEY COUNTY. Station: CHERRY CREEK (P. O., LESLIE).

H. T. ROBINSON, Observer.

[Established by Weather Bureau March, 1895. Latitude, 44° 37' N. Longitude, 101° 29' W. Elevation, unknown.]

This station is on the Cheyenne River bottom land at the mouth of Cherry Creek and is in the open country. The river valley proper is one-half mile wide. Back from the river the country is nearly level prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter that is supported on posts 4 feet high and is distant 100 feet from a store and dwelling combined. The rain gage is not far from the shelter; its top is 4 feet above the ground.

The mean temperature was obtained from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	21	36	64	7	-35	29	13	0.3	1	0.1	2.0	2.6	4.0
January.....	20	36	67	5	-28	16	16	0.1	1	0.5	T.	0.2	0.5
February.....	18	33	69	3	-41	28	7	0.1	1	0.2	T.	0.6	2.5
Winter mean.....	20	35	.....	5	.....	.....	.....	0.5	3	0.8	2.0	3.4	.....
March.....	28	43	83	13	-29	34	17	0.8	3	1.8	2.6	(?)	(?)
April.....	49	65	95	32	-3	57	44	1.2	4	1.4	2.0	1.0	8.0
May.....	60	77	100	44	17	64	55	1.5	4	T.	1.9	0.0	0.0
Spring mean.....	46	62	.....	30	.....	.....	.....	3.5	11	3.2	6.5	1.0	.....
June.....	68	84	113	53	30	72	64	3.2	6	3.4	3.3	0.0	0.0
July.....	76	92	114	59	36	83	72	1.8	3	0.5	T.	0.0	0.0
August.....	73	90	115	56	36	77	70	2.3	5	2.3	5.7	0.0	0.0
Summer mean.....	72	89	.....	56	.....	.....	.....	7.3	14	6.2	9.0	0.0	.....
September.....	62	79	108	44	18	72	55	1.2	1	T.	0.4	0.0	0.0
October.....	49	67	96	31	-4	53	45	0.4	1	T.	1.0	0.0	0.0
November.....	29	44	88	14	-25	39	15	0.4	2	T.	T.	3.9	12.0
Fall mean.....	47	63	.....	30	.....	.....	.....	2.0	5	T.	1.4	3.9	.....
Annual mean.....	46	62	115	30	-41	.....	.....	13.3	33	10.2	18.9	.....	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 100° or above.	Year.	Minimum below -31°.	Maximum 100° or above.
1895	.....	May 8; June 14, 22; July 4, 5, 12, 25, 27, 28, 31; Aug. 1, 3, 12, 13, 15, 25, 31; Sept. 2, 13, 16, 19.	1899	Feb. 5, 6, 8, 9, 11, 12	June 29, 30; July 9, 11, 18, 19, 21, 22, 25; Aug. 22, 25, 27; Sept. 1, 3.
1896	None	June 3, 28-30; July 1, 2, 11; Aug. 2, 3, 5-7, 30.	1900	None	June 30; July 21, 30; Aug. 1, 2, 7-9, 30, 31; Sept. 4.
1897	Dec. 3	June 12, 13, 16; July 1, 7, 16, 17, 27, 28; Aug. 25; Sept. 2, 3, 7, 8.	1901	do	July 3, 7, 8, 12-14, 16-20, 22-24; Aug. 1, 5, 16, 24, 27.
1898	None	July 3-5, 7, 11, 12, 14-16, 18, 21, 26, 27; Aug. 19-21, 27, 29; Sept. 2, 21.	1902	do	July 15, 23, 24, 28, 29, 31.
			1903	do	July 6, 24; Aug. 17, 20.

SOUTH DAKOTA.

Central Section: HUGHES COUNTY. Station: PIERRE.

GEORGE HASS-HAGEN, Observer.

[Established July 6, 1891. Latitude, 44° 22' N. Longitude, 100° 21' W. Elevation, 1,455 feet.]

This station is located in the Geiger Building, near the corner of Pierre street and Dakota avenue, in the business or southwestern section of the town, within two squares of the east bank of the Missouri River, and between the river and the bluffs or hills. The hills are distant about half a mile and form the eastern and northern boundary of the valley; the highest point is probably 160 feet above the flat or business section of the town; similar hills of about the same elevation on the west side of the river form a western and northern boundary.

The station was first located in the Bank of Commerce Building, and continued in this building until October 5, 1898, when it was moved for the convenience of kite-flying experiments to the corner of Tiffin and Attica streets; it was moved from this location to its present site on October 29, 1900.

The instruments, supports, etc., are of the standard roof pattern. Height of thermometers above ground, 43 feet; rain gage, 37 feet; anemometer, 50 feet; wind vane, 52 feet.

The tabulated data are from the full period of observation—twelve and one-half years, July 1, 1891, to December 1, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 p. m.	Absolute, 8 p. m.	Relative, 8 a. m.	Absolute, 8 a. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 23	° F. 32	° F. 87	° F. 14	° F. -19	° F. 30	° F. 15	In. 0.6	6	In. 0.1	In. 2.2	In. 4.8	In. 10.5	P. ct. 77	Gr. 0.87	P. ct. 68	Gr. 1.10	NW
January.....	19	29	60	-9	-30	27	9	0.5	6	0.5	0.4	4.5	9.0	77	0.66	70	0.76	NW
February.....	18	26	70	7	-39	28	7	0.5	7	T.	0.8	4.3	5.0	78	0.64	70	0.95	NW
Winter mean.....	20	29		10				1.6	19	0.6	3.4	13.6		77	0.72	69	1.00	NW
March.....	29	40	84	19	-15	35	15	1.4	9	1.6	1.4	9.7	9.0	79	1.02	64	1.46	NW
April.....	48	60	94	37	5	55	42	2.2	9	1.5	1.5	2.1	6.5	74	2.03	49	2.30	SE.
May.....	60	71	98	48	30	66	49	1.7	8	0.5	0.8	T.	0.6	72	3.15	43	3.41	SE.
Spring mean.....	46	57		35				5.3	26	3.6	3.7	11.8		75	2.07	52	2.29	SE.
June.....	69	81	103	57	38	73	65	3.2	12	1.1	5.6	0.0	0.0	74	4.40	46	4.44	SE.
July.....	75	88	108	63	45	82	71	2.4	9	0.8	1.2	0.0	0.0	71	4.98	42	5.04	SE.
August.....	74	86	110	61	39	79	70	1.9	9	0.2	4.8	0.0	0.0	74	4.70	44	4.96	SE.
Summer mean.....	73	85		60				7.5	30	2.1	11.6	0.0		73	4.69	44	4.81	SE.
September.....	64	77	104	51	26	72	58	1.1	6	0.7	0.7	T.	0.1	71	3.21	44	3.63	SE.
October.....	51	64	98	38	4	55	46	0.7	5	0.6	0.5	0.3	2.8	74	2.11	50	2.34	NW
November.....	32	42	80	21	-16	42	15	0.5	5	0.2	0.2	3.8	7.0	76	1.23	59	1.40	NW
Fall mean.....	49	61		37				2.3	16	1.5	1.4	4.1		74	2.18	51	2.46	NW
Annual mean.....	47	58	110	35	-39			16.7	91	7.8	20.1	29.5	10.5	75	2.42	54	2.64	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 100° or above.	Year.	Minimum below -30°.	Maximum 100° or above.
1894	None	July 10, 11, 23, 25, 26, 29-31; Aug. 22.	1899	Feb. 8, 9, 11, 12	June 29, 30; July 11, 19, 21, 22, 25; Sept. 1.
1895	do.	Aug. 13, 21; Sept. 9.	1900	None	June 30, July 12, 31; Aug. 1, 2, 7.
1896	do.	July 1, 11, 12; Aug. 7, 28.	1901	do.	July 7, 8, 12-14, 19, 20, 22-24; Aug. 1, 27.
1897	do.	Sept. 7.	1902	do.	June 9; July 15, 24, 29.
1898	do.	June 22, 23; July 21, 23, 26; Aug. 19-21, 27; Sept. 1.	1903	do.	July 24; Aug. 20.

SOUTH DAKOTA.

James River Valley: SPINK COUNTY. Station: REDFIELD.

F. L. RANSOM, Observer.

[Established by Weather Bureau November, 1897. Latitude, 44° 52' N. Longitude, 98° 30' W. Elevation, 1,295 feet.]

This station is at the home of the observer, one-fourth mile southwest of the town limits, and practically in the open country. The surrounding country is gently rolling prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, which is erected on posts about 3 feet high, and stands 30 feet distant from a one-story dwelling and 75 feet from a 1½-story barn. The rain gage is 6 feet west of the shelter and equally distant from the buildings. The top of the gage is 3 feet above the ground.

The mean temperature was calculated from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, NOVEMBER 1, 1897, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth	Great- est depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.			In.	In.	In.	In.	
December.....	17	29	58	4	-30	25	10	0.4	1	T.	0.1	1.9	4.0	
January.....	18	31	64	6	-31	23	12	0.1	1	T.	0.1	0.9	8.0	
February.....	13	27	60	0	-40	22	7	0.3	2	0.1	0.3	2.6	4.0	
Winter mean.....	16	29		3				0.8	7	0.1	0.5	5.4		
March.....	27	40	73	15	-21	33	14	1.0	6	0.5	1.8	8.0	13.0	
April.....	45	60	92	30	2	50	42	2.0	7	1.0	3.8	1.3	3.0	
May.....	57	70	92	43	19	61	54	2.2	8	4.5	0.5	0.0	0.0	
Spring mean.....	43	57		29				5.2	21	6.0	6.1	9.3		
June.....	65	79	100	51	27	68	60	3.1	10	1.2	3.0	0.0	0.0	
July.....	72	87	105	57	40	77	69	3.2	9	2.8	4.0	0.0	0.0	
August.....	70	85	106	55	32	75	67	3.9	10	0.8	9.3	0.0	0.0	
Summer mean.....	69	84		54				10.2	29	4.8	16.3	0.0		
September.....	57	71	101	42	16	61	55	2.9	7	1.4	6.0	0.0	0.0	
October.....	48	63	87	32	14	52	41	1.2	6	0.8	1.6	0.6	3.0	
November.....	30	44	76	16	-14	41	26	0.2	3	0.3	0.2	1.9	2.0	
Fall mean.....	45	59		30				4.3	16	2.5	7.8	2.5		
Annual mean.....	43	57	106	29	-40			20.5	73	13.4	30.7	17.2	13.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD NOVEMBER 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1898	None.....	June 29, 30; July 26; Aug. 21, 28, 30; Sept. 1-3.	1901	None.....	June 23; July 8, 12-16, 22-24, 28; Aug. 1, 6, 20, 27.
1899	Jan. 30; Feb. 8, 9, 11...	July 18-22, 26-28.	1902	.....do.....	July 12, 29.
1900	None.....	July 30, 31; Aug. 1-4.	1903	.....do.....	None.

SOUTH DAKOTA.

Big Sioux River Valley: DEUEL COUNTY. Station: GARY.

J. R. MARTIN, Observer.

[Established by Weather Bureau in July, 1891, and discontinued in April, 1903. Latitude, 44° 48' N. Longitude, 96° 27' W. Elevation 1,484 feet.]

This station was at the home of the observer in the residence portion of the town. The thermometers (maximum and minimum) were exposed in a standard Weather Bureau shelter, well located, and the exposure of the rain gage was very good. The surrounding country is rolling prairie.

The mean temperature was obtained from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS JULY 1, 1891, TO MARCH 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
December.....	° F. 18	° F. 28	° F. 58	° F. 7	° F. -26	° F. 24	° F. 10	In. 0.4	1	In. 0.2	In. 0.4	In. 4.1	In. 16.0
January.....	12	23	55	2	-34	23	-2	0.5	3	0.2	0.4	4.4	9.0
February.....	12	22	61	1	-39	20	4	0.6	2	0.5	1.1	6.6	13.0
Winter mean.....	14	24		3				1.5	6	0.9	1.9	15.1	
March.....	27	37	76	15	-19	35	19	1.7	3	0.0	4.2	12.4	24.0
April.....	46	57	91	34	4	54	38	3.0	5	2.1	6.9	4.5	12.0
May.....	57	69	95	44	26	62	47	3.4	6	2.7	5.8	0.2	2.0
Spring mean.....	43	54		31				8.1	14	4.8	16.9	17.1	
June.....	67	79	98	55	29	72	62	3.0	5	2.4	3.4	0.0	0.0
July.....	73	86	106	60	41	78	70	2.9	6	2.4	0.5	0.0	0.0
August.....	70	83	102	58	36	80	64	2.7	5	2.6	0.6	0.0	0.0
Summer mean.....	70	83		58				8.6	16	7.4	4.5	0.0	
September.....	60	74	108	47	21	68	54	2.2	4	2.5	3.4	T.	T.
October.....	48	60	90	36	9	54	42	1.6	4	0.1	2.7	1.2	4.0
November.....	27	37	72	16	-22	41	15	0.7	3	1.8	2.0	4.2	6.0
Fall mean.....	45	57		33				4.5	11	4.4	8.1	5.4	
Annual mean.....	43	55	108	31	-39			22.7	47	17.5	31.4	37.6	24.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JUNE 1, 1894, TO MARCH 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	None.....	June 12, 13, 30; July 10, 11, 16-18, 21-23, 26, 29-31; Aug. 6.	1899	Jan. missing; Feb. 8-12.	July 21, 22, 31.
1895	Jan. 31; Feb. 1, 3-5, 7, 8.	July 6; Aug. 13; Sept. 9, 17, 19.	1900	None.....	July 1, 24; Aug. 2, 3, 6, 7, 10.
1896	None.....	July 1; Aug. 3, 4, 6, 7, 10.	1901	do.....	July 11-13, 18-24, 31; Aug. 20.
1897	do.....	June 13; July 7-9.	1902	Dec. missing.	July missing.
1898	do.....	July 17, 22; Aug. 31; Sept. 1.	1903	No record after Mar.	

SOUTH DAKOTA.

Eastern District: BEADLE COUNTY. Station: HURON.

S. W. GLENN, Local Forecaster.

[Established by Signal Service July 1, 1881. Latitude, 44° 21' N. Longitude, 98° 14' W. Elevation, 1,285 feet.]

This station is on the west side of and seven-eighths of a mile distant from the James River. The surrounding country is gently rolling prairie and there are no elevations of any consequence nearer than the Wessington Hills, about 30 miles southwest of the town.

Since March 21, 1897, the office has been in the Jeffris Block, No. 337 Dakota avenue. The thermometers are exposed in a standard Weather Bureau shelter erected on the roof of the block and are 56 feet above ground. The rain gage is located on the roof of the block, the top of the gage being 52 feet above ground.

While the station has always been in the business portion of the town its distance from the open country does not now exceed 1 mile in any direction and was less in earlier years. When first established it was near the southern limits of the town. In all cases the rain gage exposure has been free from any obstructions that might affect the record. The anemometer exposure has always been very good, but was considered best while the office was in the Alliance Block, where its elevation was 72 feet above ground.

Tabulated data are from the following periods of observation: Snowfall data, nineteen years; sunshine, six years; humidity, fifteen years, 1889-1903. Remainder of data is from the full period, twenty-two and one-half years, July 1, 1881, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.		
												Average depth.	Greatest depth in 24 hours.								
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P.ct.	Gr.s.	P.ct.	Gr.s.					
December.....	19	29	65	8	-34	28	9	0.6	7	0.1	0.2	5.2	4.5	83	0.82	73	0.99	143	52	NW.	
January.....	11	22	64	0	-43	24	1	0.5	7	0.7	0.1	5.1	13.0	84	0.59	74	0.77	143	63	NW.	
February.....	12	24	68	1	-37	25	4	0.5	7	0.2	0.2	4.2	7.4	84	0.59	74	0.80	206	70	NW.	
Winter mean.....	14	25	.....	3	.....	.....	.....	1.6	21	1.0	0.5	14.5	.....	84	0.67	74	0.85	177	62	NW.
March.....	28	38	79	17	-25	36	16	1.0	9	1.2	0.8	6.1	8.7	82	0.97	67	1.30	221	60	NW.	
April.....	47	59	94	34	7	55	40	2.8	10	2.8	4.2	0.5	4.1	79	2.09	54	2.28	258	64	SE.	
May.....	57	69	96	44	22	62	48	2.6	11	0.4	4.5	T.	T.	77	3.12	50	3.30	309	67	SE.	
Spring mean.....	44	55	.....	32	.....	.....	.....	6.4	30	4.4	9.5	6.6	.....	79	2.06	57	2.29	263	64	SE.
June.....	67	79	99	54	31	70	62	3.6	10	2.2	5.9	0.0	0.0	81	4.64	55	4.82	307	66	SE.	
July.....	72	85	108	59	41	78	67	2.8	9	0.2	5.9	0.0	0.0	80	5.26	51	5.54	336	72	SE.	
August.....	70	83	108	57	33	76	65	2.5	10	0.6	1.4	0.0	0.0	83	4.77	51	4.93	280	65	SE.	
Summer mean.....	70	82	.....	57	.....	.....	.....	8.9	29	3.0	13.2	0.0	.....	81	4.89	52	5.10	308	68	SE.
September.....	61	74	103	47	18	69	57	1.7	7	2.4	0.9	0.0	0.0	80	3.27	49	3.57	234	62	SE.	
October.....	48	61	94	34	3	54	42	1.3	7	2.2	3.4	0.8	5.8	81	2.15	56	2.52	200	59	SE.	
November.....	30	41	77	18	-28	41	14	0.6	6	0.4	0.6	3.7	5.0	81	1.25	65	1.42	169	58	SE.	
Fall mean.....	46	59	.....	33	.....	.....	.....	3.6	20	5.0	4.9	4.5	.....	81	2.22	57	2.50	201	60	SE.
Annual mean.....	44	55	108	31	-43	.....	.....	20.5	100	13.4	28.1	25.6	13.0	81	2.46	60	2.69	237	63	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	Jan. 24.....	May 15; June 12; July 10, 11, 17, 18, 22-26, 29, 30; Aug. 6, 8, 27, 28, 31; Sept. 1, 27.	1898	None.....	June 28; Aug. 20, 29-31; Sept. 1, 2.
1895	Feb. 7, 8.....	July 4, 5, 15; Aug. 13, 16; Sept. 17, 19.	1899	Feb. 8-11.....	July 19, 21, 25, 31; Aug. 10.
1896	None.....	July 11-13; Aug. 7, 10.	1900	None.....	July 1, 30, 31; Aug. 1-4, 18.
1897	.....do.....	July 7, 8, 29; Sept. 2, 3, 5, 7, 12.	1901	.....do.....	July 8, 12-14, 19-24; Aug. 1.
			1902	.....do.....	July 12, 29.
			1903	Dec. 13.....	July 7, 27; Aug. 21.

SOUTH DAKOTA.

Big Sioux River Valley: BROOKINGS COUNTY. Station: BROOKINGS.

E. C. CHILCOTT, Observer.

[Established by Signal Service July, 1888. Latitude, 44° 18' N. Longitude, 96° 48' W. Elevation, 1,630 feet.]

This station is at the State Agricultural College and Experiment Station, 1 mile northeast of the post-office and in the open country. The thermometers (maximum and minimum) are exposed in a substantial shelter of Weather Bureau pattern. The rain gage is on the roof of the shelter, its top being 7 feet above the ground. The only building or other obstruction near the equipment is a 1-story granary, 100 feet distant. The surrounding country is gently rolling prairie, and the ground upon which the instruments are located slopes a little toward the northwest.

Prior to September, 1895, the mean temperature was obtained from the 7 a. m., 2 p. m., and 9 p. m. observations; thereafter from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	19	30	64	8	-28	26	11	0.6	4	0.1	0.3	3.3	5.0
January.....	13	24	60	2	-34	21	4	0.4	4	0.1	0.4	3.3	12.0
February.....	13	25	62	2	-41	24	5	0.4	3	T.	0.4	3.7	4.0
Winter mean.....	15	26		4				1.4	11	0.2	1.1	10.3	
March.....	27	38	78	15	-28	34	16	0.9	4	1.2	0.8	4.0	13.2
April.....	46	59	90	32	5	52	41	2.2	7	3.0	3.2	0.9	8.0
May.....	57	69	93	42	17	60	48	2.8	8	0.3	7.3	0.2	3.5
Spring mean.....	43	55		30				5.9	19	4.5	11.3	5.1	
June.....	65	78	97	52	29	70	60	3.5	10	1.3	3.5	0.0	0.0
July.....	70	84	104	56	37	76	65	2.4	8	0.1	3.7	0.0	0.0
August.....	68	82	101	53	28	74	62	2.7	8	0.7	3.0	0.0	0.0
Summer mean.....	68	81		54				8.6	26	2.1	10.2	0.0	
September.....	59	76	100	45	12	66	54	1.9	6	1.7	1.5	T.	T.
October.....	46	61	92	32	4	54	40	1.2	5	2.4	0.5	0.2	2.0
November.....	28	41	73	16	-29	39	17	0.5	3	0.2	0.2	2.6	3.0
Fall mean.....	44	59		31				3.6	14	4.3	2.2	2.8	
Annual mean.....	43	56	104	30	-41			19.5	70	11.1	24.8	18.2	13.2

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -31°.	Maximum 96° or above.	Year.	Minimum below -31°.	Maximum 96° or above.
1894	Jan. 24, 25.....	June 30; July 1, 10, 11, 17, 18, 22, 23, 26, 27, 29, 31; Aug. 6, 8, 28.	1899	Feb. 8, 9, 11, 12.....	None.
1895	Feb. 7, 8.....	Sept. 17, 19.	1900	None.....	Aug. 2.
1896	None.....	July 12 (August missing).	1901	.....do.....	July 8, 12-14, 19-24; Aug. 1.
1897	.....do.....	None.	1902	.....do.....	None.
1898	.....do.....	Aug. 29-31; Sept. 1, 2.	1903	.....do.....	Do.

SOUTH DAKOTA.

Black Hills: PENNINGTON COUNTY. Station: RAPID CITY.

W. D. MAXWELL, Observer.

[Established by Signal Service January 1, 1888. Latitude, 44° 4' N. Longitude, 103° 12' W. Elevation, 3,213 feet.]

This station is situated in a valley on the east side of the Black Hills and somewhat north of a line running east and west, cutting the Black Hills in halves. It is about three or four miles distant from the hills proper, but there are foothills 200 to 400 feet high within a mile on the west and south.

The office was located in the Tom. Sweeney Building, southwest corner Main and Seventh streets, from January 1, 1888, to January 31, 1897, and in the Lakota Building, northeast corner St. Joe and Seventh streets, from February 1, 1897, to December 31, 1903.

The thermometers are exposed in a standard shelter 10 feet above the roof; elevation of shelter above ground, 35 feet. The elevations of the instruments above ground are as follows: Thermometers, 46 feet; wind vane, 52 feet; gages, rain and snow, 35 feet.

Tabulated data are from the following periods of observation: Monthly and annual means of maximum and minimum temperatures, sixteen and one-half years (January, 1881, to June, 1883; January, 1888, to December, 1901). Remainder of data from period of observation, sixteen years, January 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr.	P. ct.	Gr.		
December.....	30	41	75	19	-24	38	22	0.3	6	0.3	0.1	3.0	4.1	63	1.52	64	1.90	W.
January.....	23	33	69	10	-30	33	10	0.4	6	0.5	0.5	3.8	4.3	70	1.44	65	2.31	W.
February.....	22	34	72	10	-34	33	9	0.5	8	0.9	0.4	5.4	8.6	76	1.64	69	1.93	N.
Winter mean.....	25	36		13				1.2	20	1.7	1.0	12.2		70	1.53	66	2.05	W.
March.....	30	42	78	18	-17	40	21	1.3	11	1.1	1.9	9.0	8.8	75	2.24	61	1.96	NW.
April.....	46	58	89	34	-2	51	40	2.2	10	1.7	2.5	3.7	10.6	70	3.03	50	2.04	NW.
May.....	55	66	92	43	22	62	47	2.7	11	1.2	7.5	1.2	10.3	68	3.66	46	2.19	SE.
Spring mean.....	44	55		32				6.2	32	4.0	11.9	13.9		71	2.98	52	2.06	NW.
June.....	64	76	103	52	35	70	60	3.5	12	1.5	4.8	0.0	T.	69	4.48	49	2.79	SE. ^a
July.....	72	85	102	59	46	74	68	2.0	9	0.6	2.5	0.0	0.0	64	4.20	41	2.33	W.
August.....	70	84	106	58	42	73	66	1.4	9	0.1	1.3	0.0	0.0	65	4.14	39	2.11	W.
Summer mean.....	69	82		56				6.9	30	2.2	8.6	0.0		66	4.27	43	2.41	W.
September.....	57	75	100	48	25	69	55	0.9	6	1.0	1.2	0.4	1.9	62	2.85	41	1.98	NW.
October.....	50	62	96	37	10	53	47	0.6	5	0.3	0.1	0.4	4.1	64	2.76	49	2.05	W.
November.....	35	47	77	22	-9	43	21	0.4	5	0.4	0.4	3.7	4.5	68	2.32	61	2.26	NW.
Fall mean.....	47	61		36				1.9	16	1.7	1.7	4.5		65	2.64	50	2.10	NW.
Annual mean.....	46	59	106	34	-34			16.2	98	9.6	23.2	30.6	10.6	68	2.86	53	2.16	W.

^a Also W. and NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 23, 24.....	July 9, 10, 23-25, 30; Aug. 22-28.	1899	Feb. 2-5, 11, 12.....	June 29; July 10, 11, 19-22; Aug. 21, 27.
1895	Feb. 7.....	July 4, 5, 28; Aug. 12, 15, 25; Sept. 13, 16.	1900	None.....	June 30; July 12, 21, 30, 31; Aug. 1, 2, 7, 30, 31.
1896	None.....	July 1, 11, 12; Aug. 2, 29.	1901	.....do.....	July 3, 11-13, 19, 20, 22, 23, 31; Aug. 5, 16.
1897	Jan. 25.....	July 1, 17, 28; Aug. 12, 25; Sept. 2, 6-8.	1902	Jan. 25.....	July 15, 24, 31.
1898	None.....	June 16, 20, 23; July 4, 5, 21, 26; Aug. 19-21, 25, 27, 29; Sept. 20.	1903	None.....	July 6; Aug. 20.

SOUTH DAKOTA.

Missouri River Valley: LYMAN COUNTY. Station: HOTCH CITY.

A. JOHNSON, Observer.

[Established by Weather Bureau in May, 1892. Latitude, 43° 55' N. Longitude, 99° 51' W. Elevation unknown.]

This station is at the home of the observer, on a farm 2 miles from the post-office and 30 miles from the town. The surrounding country is high level prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, erected on posts 4 feet high, and 35 feet southwest of a one-and-one-half story dwelling. The rain gage is 150 feet from the same building, and is free from obstructions of any kind; its top is 3 feet above the ground.

The mean temperature was calculated from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	21	33	63	9	-25	29	14	0.3	3	0.1	0.3	4.2	4.0	
January.....	18	31	66	5	-38	25	9	0.3	3	0.4	0.1	2.1	3.0	
February.....	16	29	69	3	-41	28	7	0.3	3	0.1	0.2	3.4	6.0	
Winter mean.....	18	31		6				0.9	9	0.6	0.6	9.7		
March.....	29	42	79	16	-20	34	19	1.1	5	1.5	0.9	6.1	7.5	
April.....	48	62	93	34	- 1	54	41	2.3	6	2.5	1.5	1.9	6.0	
May.....	59	73	98	44	24	64	50	1.9	6	0.5	0.7	T.	T.	
Spring mean.....	45	59		31				5.3	17	4.5	3.1	8.0		
June.....	67	82	104	53	29	72	64	3.3	8	2.7	7.1	0.0	0.0	
July.....	73	89	109	58	38	75	69	2.2	6	0.5	1.3	0.0	0.0	
August.....	72	86	110	57	34	77	68	1.6	6	0.2	2.9	0.0	0.0	
Summer mean.....	71	86		56				7.1	20	3.4	11.3	0.0		
September.....	62	78	104	46	19	71	58	0.7	3	0.3	2.3	T.	T.	
October.....	50	66	95	34	- 5	55	44	0.6	3	1.0	2.1	0.5	4.0	
November.....	30	44	78	17	-21	37	15	0.4	3	0.1	T.	3.1	4.0	
Fall mean.....	47	63		32				1.7	9	1.4	4.4	3.6		
Annual mean.....	45	60	110	31	-41			15.0	55	9.9	19.4	21.3	7.5	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 100° or above.	Year.	Minimum below -20°.	Maximum 100° or above.
1894	Jan. 6-9, 24, 25; Feb. 12, 13; Dec. 27.	June 12; Aug. 5-9, 22; Sept. 1.	1898	None.....	June 22; July 23, 26; Aug. 20, 21, 27, 31; Sept. 1.
1895	Jan. 23, 28, 30; Feb. 1, 3, 7, 8.	July 4, 5, 15; Aug. 1, 13, 21; Sept. 2, 9, 19.	1899	Jan. 29, 30; Feb. 5-12; Dec., missing.	June, July, and Aug., missing.
1896	Nov. 10.....	July 1, 11-13, 28; Aug. 7, 28.	1900	Jan. missing; Feb. 15.	June 30; July 30, 31; Aug. 2-4, 7.
1897	Jan. 26, 27; Feb. 26; Mar. 14; Nov. 29; Dec. 17.	July 1, 7, 8, 13; Aug. 31; Sept. 2, 3, 7, 12.	1901	Dec. 14, 15, 19.....	July 12-14, 17-24; Aug. 1, 27.
			1902	Jan. 26, 27; Feb. 4....	June 9; July 12, 15, 24, 28, 29.
			1903	Feb. 15-18; Dec. 13...	July 6, 2, 27; Aug. 20, 21.

SOUTH DAKOTA.

Missouri River Valley: BRULE COUNTY. Station: KIMBALL.

A. S. STUVER, Observer.

[Established by Signal Service in April, 1886. Latitude, 43° 45' N. Longitude, 98° 57' W. Elevation, 1,788 feet.]

This station is at the home of the observer, in the residence portion of the town, and one-fourth mile from the town limits. The surrounding country is rolling prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, which is located on the north side of a two-story dwelling, and supported on posts 4 feet high. The rain gage is 35 feet northeast of the dwelling, with clear exposure to the north, west, and southeast. The top of the gage is 3 feet above the ground.

Prior to May, 1891, the mean temperature was obtained from the 8 a. m. and 8 p. m. observations; thereafter from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	22	31	62	12	-24	28	15	0.7	5	0.2	0.3	4.9	6.0
January.....	16	28	63	6	-32	25	■	0.5	5	0.7	0.5	4.7	9.0
February.....	15	28	68	5	-38	28	6	0.6	5	0.2	0.2	5.6	10.0
Winter mean.....	18	29	.....	8	.....	.....	.....	1.8	15	1.1	1.0	15.2	.....
March.....	29	42	85	17	-17	35	18	1.2	7	1.3	1.0	6.4	8.5
April.....	48	61	92	35	■	56	39	2.6	■	1.9	5.4	2.4	11.5
May.....	57	72	99	45	25	64	46	1.9	■	0.8	1.2	T.	0.1
Spring mean.....	45	58	.....	32	.....	.....	.....	5.7	23	4.0	7.6	8.8	.....
June.....	67	81	100	54	35	72	61	3.3	9	1.4	5.6	0.0	0.0
July.....	73	88	110	60	44	79	67	2.6	■	0.4	5.4	0.0	0.0
August.....	71	85	107	58	33	76	64	2.7	■	0.4	2.0	0.0	0.0
Summer mean.....	70	85	.....	57	.....	.....	.....	8.6	25	2.2	13.0	0.0	.....
September.....	61	77	102	48	19	72	52	1.3	5	0.6	1.8	0.0	0.0
October.....	48	63	93	36	7	54	37	0.9	5	0.8	2.3	1.2	8.0
November.....	30	42	75	20	-19	42	15	0.6	5	0.2	1.7	4.7	6.0
Fall mean.....	46	61	.....	35	.....	.....	.....	2.8	15	1.6	5.8	5.9	.....
Annual mean.....	45	58	110	33	-38	.....	.....	18.9	78	8.9	27.4	29.9	11.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 96° or above.	Year.	Minimum below -20°.	Maximum 96° or above.
1894	Jan. 8, 9, 23-25; Feb. 12, 19.	May 13-15; June 12, 13, 29; July 2, 9-12, 15-18, 22-27, 29-31; Aug. 5-10, 13, 17, 18, 22, 27, 28, 31; Sept. 1, 2, 5, 27.	1899	Jan. 30; Feb. 4-12.....	June 9, 17; July 9, 19-22, 24, 25, 31; Aug. 9; Sept. 1.
1895	Jan. 12, 26, 27; Feb. 1, 3, 7, 8.	May 8; July 5, 15, 26, 28; Aug. 1, 8, 13, 16, 21; Sept. 2, 9, 17, 19.	1900	None.....	June 21, 25, 26, 30; July 30, 31; Aug. 1-4; Sept. 1.
1896	None.....	June and Aug. record incomplete; July 1, 11-14, 19.	1901	Dec. 15.....	July 8, 12-14, 20-24, 28; Aug. 1; data Aug. 21 to 31 missing.
1897	Jan. 25-27; Feb. 26....	July 1, 6-8, 28, 29; Aug. 31; Sept. 2, 3, 5-7, 12.	1902	Jan. 26; Feb. 4; Dec. 26.	July 29; Aug. 1.
1898	None.....	June 22, 28; July 23, 26; Aug. 19-22, 27; 29-31; Sept. 1, 2.	1903	Feb. 15-18.....	July 7, 20.

SOUTH DAKOTA.

James River Valley: HANSON COUNTY. Station: ALEXANDRIA.

W. S. HILL, Observer.

[Established by Signal Service March, 1882. Latitude, 43° 39' N. Longitude, 97° 47' W. Elevation, 1,352 feet.]

This station is at the home of the observer, near the eastern limits of the town. The surrounding country is gently undulating prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, which is erected on posts and stands about 100 feet distant from the residence of the observer, a two-story building. The rain gage is exposed in an open space on a lawn, 20 feet to the northeast of some trees. The top of the gage is 4 feet above the ground.

Prior to June, 1889, the mean temperature was obtained from the 7 a. m. and 7 p. m. observations; after that time from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	20	32	62	9	-29	30	12	0.7	2	T.	1.2	6.5
January.....	16	27	66	4	-35	25	6	0.5	3	0.4	0.3	7.0
February.....	15	27	69	3	-38	24	8	0.6	2	0.4	1.1	12.0
Winter mean.....	17	29		5				1.8	7	0.8	2.6	
March.....	28	40	86	17	-24	37	18	1.8	5	1.0	0.9	9.0
April.....	48	62	94	34	8	54	43	3.3	7	2.4	3.3	4.0
May.....	58	72	98	43	22	64	50	3.1	8	2.2	5.3	0.0
Spring mean.....	45	58		31				8.2	20	5.6	9.5	
June.....	68	81	106	54	31	73	63	3.7	9	3.8	4.6	0.0
July.....	73	88	110	58	33	79	69	3.4	7	2.1	6.7	0.0
August.....	71	86	107	56	31	79	65	2.9	6	0.3	3.8	0.0
Summer mean.....	71	85		56				10.0	22	6.2	15.1	
September.....	61	77	109	45	15	68	58	2.2	1	2.5	1.7	0.0
October.....	50	67	94	33	-2	56	44	1.0	4	0.2	1.6	3.0
November.....	31	44	79	18	-15	43	17	0.5	2	1.3	0.1	5.0
Fall mean.....	47	63		32				4.6	10	4.0	3.4	
Annual mean.....	45	59	110	31	-38			24.6	59	16.6	30.6	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 96° or above.	Year.	Minimum below -20°.	Maximum 96° or above.
1894	Jan. 4, 5, 7-9, 23-25 27.	May 13-15; June 2, 11, 12, 20-24, 28-30; July 2, 10, 11, 15-18, 22-27, 29-31; Aug. 6-9, 28; Sept. 27.	1899	Jan. 30; Feb. 4-12	July 20, 25, 31; Aug. 9, 10, 28.
1895	Jan. 8, 12, 26, 28, 30; Feb. 1-3, 5, 7-9.	May 26; July 5, 12, 14-16, 26; Aug. 8, 13, 16, 28; Sept. 4, 10, 14, 17, 19.	1900	None.....	May 11; June 6, 21, 25, 26; July 1, 13, 31; Aug. 1-3, 18, 20.
1896	Jan. 4.....	July 2, 11-14 (record incomplete); Aug. 3, 4, 6-10, 13, 29.	1901	Dec. 14, 15	July 3, 4, 8-10, 12-15, 17, 19-25, 27, 28; Aug. 1, 16, 28.
1897	Jan. 24-27, 29; Feb. 26; Mar. 14.	July 6-8, 29; Aug. 31; Sept. 4-7.	1902	Jan. 26-28; Feb. 4; Dec. 25, 26.	July 12, 29, 31; Aug. 1.
1898	Dec. 13.....	June 28; July 20; Aug. 19, 20, 22, 23, 29-31.	1903	Feb. 15-18; Dec. 13....	July 25.

SOUTH DAKOTA.

Big Sioux River Valley: MINNEHAHA COUNTY. Station: SIOUX FALLS.

E. S. CARTER, Observer.

[Established by Signal Service June, 1890. Latitude, 43° 33' N. Longitude, 96° 43' W. Elevation, 1,400 feet.]

This station is one-fourth mile from the western limits of the city, and at the home of the observer. The surrounding country is gently undulating prairie. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter that is erected on posts 3½ feet high and stands about 50 feet distant from a 1½-story dwelling. The rain gage is in an unobstructed open space, 30 feet distant from the dwelling. The top of the gage is about 4 feet above the ground.

Prior to August, 1891, the mean temperature was obtained from the 7 a. m., 2 p. m., and 9 p. m. observations; thereafter from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	19	28	57	9	-28	26	14	0.8	3	0.4	0.6	5.2	8.0
January.....	15	24	59	4	-40	23	7	0.5	3	1.1	0.2	4.9	12.0
February.....	14	25	66	5	-42	24	5	0.5	3	T.	0.5	4.8	4.0
Winter mean.....	16	26		6				1.8	9	1.5	1.3	14.9	
March.....	28	39	80	18	-22	36	17	1.5	5	0.6	2.1	7.1	8.0
April.....	47	59	90	34	5	55	40	2.9	6	2.9	1.1	1.3	6.0
May.....	58	71	94	45	26	65	49	4.4	7	0.5	7.4	0.0	0.0
Spring mean.....	44	56		32				8.8	18	4.0	10.6	8.4	
June.....	68	80	103	53	31	75	63	4.0	7	1.4	3.0	0.0	0.0
July.....	72	86	108	58	34	80	66	2.8	5	0.9	6.0	0.0	0.0
August.....	70	84	102	56	29	75	66	2.8	6	1.3	5.1	0.0	0.0
Summer mean.....	70	83		56				9.6	18	3.6	14.1	0.0	
September.....	62	76	103	47	13	69	57	1.9	4	0.6	2.0	0.0	0.0
October.....	49	64	90	36	3	56	43	1.5	3	0.7	2.8	0.1	1.0
November.....	30	40	73	19	-24	42	18	0.6	3	0.1	0.1	2.9	6.0
Fall mean.....	47	60		34				4.0	10	1.4	4.9	3.0	
Annual mean.....	44	56	108	32	-42			24.2	55	10.5	30.9	26.3	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 96° or above.	Year.	Minimum below -20°.	Maximum 96° or above.
1894	Jan. 7, 8, 24, 25.....	June 20, 29, 30; July 4, 10, 11, 16, 17, 21-26, 28, 29, 31; Aug. 6-9, 28.	1898	Dec. 13.....	June 17; Aug. 22, 30, 31; Sept. 1, 2.
1895	Jan. 8, 27, 30; Feb. 1, 3, 5, 7, 8.	Aug. 8, 13, 16; Sept. 11, 14, 17, 19.	1899	Jan. 29, 30; Feb. 4-12..	Aug. 28 (incomplete record).
1896	None.....	July 12-14; Aug. 3, 4, 7, 9, 10.	1900	None.....	June 6; July 13; Aug. 4.
1897	Jan. 24-27; Feb. 26; Mar. 14; Dec. 17, 18.	July 6-8.	1901	Dec. 14, 15, 19.....	July 8, 12-15, 19-25; Aug. 1.
			1902	Jan. 27; Feb. 4; Dec. 26.	None.
			1903	Feb. 18; Dec. 13.....	Do.

SOUTH DAKOTA.

Black Hills District: FALL RIVER COUNTY. Station: OELRICHS.

J. E. STROUSE, Observer.

[Established by Signal Service March, 1890. Latitude, 43° 11' N. Longitude, 103° 13' W. Elevation, 3,339 feet.]

This station is on the farm of the observer, about 1½ miles from the town. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, which is erected on posts about 4 feet high and stands 50 feet east of the one-story dwelling of the observer. The rain gage is 50 feet from the dwelling or any other obstruction and 10 feet south of the shelter. The top of the gage is about 4 feet above the ground. The surrounding country is rolling prairie.

The mean temperature was calculated from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	26	38	64	14	-42	35	20	0.8	3	0.4	1.2	6.6	10.0
January.....	23	34	63	11	-28	31	15	1.1	3	0.2	2.5	9.8	12.0
February.....	20	32	67	9	-41	35	9	1.2	5	1.0	1.2	11.9	13.0
Winter mean.....	23	35		11				3.1	11	1.6	4.9	28.3	
March.....	31	44	83	18	-28	34	20	2.1	6	0.4	1.6	19.1	15.0
April.....	46	61	102	32	7	51	42	2.2	4	2.3	7.8	6.7	23.0
May.....	57	72	100	41	19	64	53	2.8	5	0.4	2.7	0.0	0.0
Spring mean.....	45	59		30				7.1	15	3.1	12.1	25.8	
June.....	66	82	110	51	33	73	61	3.1	6	1.5	8.7	0.0	0.0
July.....	73	90	108	56	38	78	60	2.0	5	1.9	1.8	0.0	0.0
August.....	72	89	107	54	34	76	69	1.0	2	1.6	2.5	0.0	0.0
Summer mean.....	70	87		54				6.1	13	5.0	13.0	0.0	
September.....	60	78	108	43	20	68	53	1.0	2	2.2	0.6	0.7	4.4
October.....	48	65	96	32	6	51	45	1.2	2	0.6	3.1	1.2	4.5
November.....	33	51	87	20	-18	41	25	0.8	3	0.4	0.2	6.9	11.5
Fall mean.....	49	63		32				3.0	7	3.2	3.9	8.8	
Annual mean.....	46	61	110	32	-42			19.3	46	12.9	33.9	62.9	23.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 100° or above.	Year.	Minimum below -20°.	Maximum 100° or above.
1894	Jan. 23; Dec. 26.....	June 29; July 9-11, 22, 24-26, 30; Aug. 7, 12, 17, 21, 28; Sept. 26.	1899	Feb. 2-4, 10, 11.....	June 28-30; July 11, 19-22, 24; Aug. 14, 29.
1895	Feb. 6.....	July 4, 5, 17, 28; Aug. 8, 12, 15; Aug. 17-31 missing; Sept. 13, 16.	1900	Feb. 13, 14.....	June 24, 25, 30; July 11, 12, 21, 29-31; Aug. 1, 2, 7, 9.
1896	Jan. 2; Mar. 2.....	July 1, 11-13; Aug. 2, 20, 28.	1901	Feb. 8; Dec. 13, 14.....	July 2, 3, 7, 12-14, 16, 19, 20, 23, 28, 31.
1897	None.....	July 1, 6, 7, 12, 13, 15-17, 28, 29; Aug. 25.	1902	None.....	June 9, 10; July 15, 24, 28, 29.
1898	do.....	June 20, 22; July 4, 5, 21, 23, 26; Aug. and Sept., missing.	1903	Feb. 14.....	July 6; Aug. 19, 20, 31.

SOUTH DAKOTA.

White River District: MEYER COUNTY (INDIAN RESERVATION). Station: ROSEBUD.

CHARLES E. COE, Observer.

[Established by Weather Bureau April, 1892. Latitude, 43° 14' N. Longitude, 100° 52' W. Elevation, 2,600 feet.]

This station is located in the open country at Oak Creek Indian day school, on level ground in the Oak Creek Valley, 28 miles northeast of Rosebud post-office. The surrounding country is rolling prairie, with no abrupt elevations. The thermometers (maximum and minimum) are exposed in a shelter of Weather Bureau pattern, which is supported on posts 3½ feet high and stands 35 feet distant from a one-story schoolhouse. The rain gage is near the shelter, in open ground, its top being about 4 feet above the ground.

The mean temperature was calculated from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	24	36	66	13	-24	34	15	1.1	1	1.9	0.3	10.7	10.0
January.....	21	33	63	10	-33	26	15	0.8	4	0.2	0.1	8.8	10.0
February.....	20	32	72	11	-35	31	7	0.7	4	0.4	1.1	6.3	6.0
Winter mean.....	22	34		10				2.6	12	2.5	1.5	25.8	
March.....	31	43	86	19	-17	36	21	1.5	1	0.5	2.6	10.9	6.0
April.....	46	60	92	33	0	51	42	2.5	7	1.1	2.7	7.4	12.0
May.....	58	73	98	42	19	64	50	2.1	7	1.9	1.5	0.1	1.5
Spring mean.....	45	59		31				6.1	18	3.5	6.8	18.4	
June.....	67	83	106	52	33	73	64	2.8	7	2.5	7.5	0.0	0.0
July.....	74	90	109	58	38	79	68	2.5	6	1.4	1.8	0.0	0.0
August.....	72	88	104	56	33	75	69	2.0	6	3.1	2.8	0.0	0.0
Summer mean.....	71	87		55				7.3	19	7.0	12.1	0.0	
September.....	62	79	103	46	18	73	58	0.9	3	0.6	1.2	0.1	1.5
October.....	49	65	92	33	-1	53	43	0.8	2	0.8	1.1	0.4	4.0
November.....	33	47	76	20	-23	40	21	0.6	2	0.3	T.	5.9	10.0
Fall mean.....	48	64		33				2.3	7	1.7	2.3	6.4	
Annual mean.....	46	61	109	32	-35			18.3	56	14.7	22.7	50.6	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 100° or above.	Year.	Minimum below -20°.	Maximum 100° or above.
1894	Jan. 9, 24 (Nov. missing).	July 10, 11, 23, 26, 28, 29; Aug. 1, 9, 10.	1899	Jan. 30; Feb. 5-13.....	July 9, 11, 21-23.
1895	Feb. 1, 7 (Nov. missing).	July 4, 5, 26-28; Aug. 12, 13, 21; Sept. 9, 13.	1900	Feb. 15.....	June 30; Aug. 2, 3.
1896	Nov. 29.....	July 12; Aug. 28.	1901	Dec. 14, 15.....	July 3, 8, 11-14, 19-24.
1897	Jan. 24.....	July 7; Aug. 25.	1902	Jan. 26, 27; Feb. 2, 4.....	June 9; July 15, 23, 29.
1898	(Nov. and Dec. missing).	June 21, 22; July 17; Aug. 19-21, 27; Sept. 1.	1903	Feb. 18.....	(July, Aug., and Sept. missing).

SOUTH DAKOTA.

Missouri River Valley: CHARLES MIX COUNTY. Station: GREENWOOD.

T. C. WILLIAMSON, Observer.

[Established by Weather Bureau in July, 1893. Latitude, 42° 54' N. Longitude, 98° 22' W. Elevation, unknown.]

This station is at the home of the observer, in the residence portion of the village. The surrounding country is hilly to some extent. The instruments are very favorably exposed, the thermometers (maximum and minimum) being in a standard Weather Bureau shelter erected on posts 4 feet 6 inches high and 250 yards from the foot of the hills on the north, the nearest elevation of any consequence. The rain gage is located in open ground, 18 yards west of a church building. The top of the gage is 2 feet 6 inches above the ground.

From May, 1898, to November, 1899, the record was kept at White Swan, 15 miles northwest of Greenwood.

Prior to January, 1894, the mean temperature was obtained from the 7 a. m., 2 p. m. and 9 p. m. observations; thereafter, from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	25	36	64	15	-26	33	18	0.6	5	T.	1.1	5.2	8.0		
January.....	22	33	64	11	-27	29	14	0.4	4	0.7	0.2	4.0	4.0		
February.....	21	32	74	10	-29	31	11	0.5	4	0.4	0.5	3.8	4.0		
Winter mean.....	23	34		12				1.5	13	1.1	1.8	13.0			
March.....	33	45	84	22	- 8	38	22	1.2	7	0.8	0.7	3.4	3.0		
April.....	50	63	95	38	11	58	45	3.2	7	2.9	1.7	0.4	3.0		
May.....	62	74	98	49	30	66	58	2.8	8	1.6	1.7	0.0	0.0		
Spring mean.....	48	61		36				7.2	22	5.3	4.1	3.8			
June.....	70	83	107	57	37	75	66	3.6	8	1.5	11.6	0.0	0.0		
July.....	76	89	111	63	41	80	73	3.4	8	1.6	0.6	0.0	0.0		
August.....	74	88	105	62	39	80	71	3.0	7	0.6	3.7	0.0	0.0		
Summer mean.....	73	87		61				10.0	23	3.7	15.9	0.0			
September.....	65	78	106	52	25	68	61	2.2	5	0.9	5.3	0.0	0.0		
October.....	53	65	90	38	13	58	42	1.5	4	1.7	1.8	1.0	3.0		
November.....	35	46	73	24	-11	44	21	0.6	4	0.2	0.5	3.5	9.0		
Fall mean.....	51	63		38				4.3	13	2.8	7.6	4.5			
Annual mean.....	49	61	111	37	-29			23.0	71	12.9	29.4	21.3	9.0		

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 96° or above.	Year.	Minimum below -20°.	Maximum 96° or above.
1894	Jan. 24.....	May 14, 15; June 26, 27, 29, 30; July 2, 10, 11, 16-18, 22, 23, 25-27, 29-31; Aug. 5-11, 13, 18, 22, 27-31; Sept. 1.	1899	Feb. 8, 9, 11, 12.....	June 17, 18; July 19-22, 24, 25, 31; Aug. 27, 28.
1895	Feb. 7, 8.....	May 8, 27; July 15, 26-28; Aug. 1, 2, 8, 13, 16, 26; Sept. 4, 10, 13, 14, 17-19.	1900	None.....	June 20, 21, 25, 26, 30; July 1-4, 12, 13, 31; Aug. 1-4, 8, 9, 17-19, 21; Sept. 8.
1896	None.....	June 16; July 2, 12-14, 29; Aug. 3, 4, 7-10, 29; Sept. 7.	1901	Dec. 14, 15.....	June 24, 25; July 3, 4, 8, 10-13 (July 14-31 missing); Aug. 16, 20, 24, 27, 28 (Aug. 1 to 9 missing).
1897	.....do.....	(No record, June to Nov., inclusive.)	1902	Jan. 27.....	June 14; July 29; Aug. 1; Sept. 7.
1898	.....do.....	(June missing) July 23, 26; Aug. 19, 21, 22, 30, 31; Sept. 1, 2.	1903	None.....	July 20.

SOUTH DAKOTA.

Missouri River Valley: BON HOMME COUNTY. Station: TYNDALL.

FRANCIS RICHMOND, Observer.

[Established by Weather Bureau in August, 1891. Latitude, 42° 59' N. Longitude, 97° 52' W. Elevation, 1,418 feet.]

This station is on the farm of the observer, about 1 mile northeast of the town limits. The thermometers (maximum and minimum) are exposed in a standard Weather Bureau shelter, which is erected on posts 3 feet high, and stands 60 feet northeast of a 1½-story frame dwelling house. The rain gage is 50 feet north of the dwelling, in open ground, its top being 4 feet above the ground. The surrounding country is gently undulating prairie.

The mean temperature was calculated from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	24	34	65	14	-25	32	16	0.7	3	T.	1.2	3.2	7.0
January.....	19	30	64	8	-33	27	11	0.4	3	1.1	0.2	4.2	5.0
February.....	18	29	65	7	-33	25	8	0.5	2	0.2	1.1	4.6	7.0
Winter mean.....	20	31	.....	10	.....	.....	.....	1.6	8	1.3	2.5	12.0	.....
March.....	33	45	82	20	-12	42	20	1.0	4	0.5	0.7	2.8	4.0
April.....	48	62	99	35	10	53	44	2.9	6	3.6	1.8	1.8	7.0
May.....	60	72	105	47	27	64	51	3.7	7	0.5	11.5	T.	T.
Spring mean.....	47	60	.....	34	.....	.....	.....	7.6	17	4.6	14.0	4.6	.....
June.....	69	82	104	57	33	74	65	3.4	8	1.4	2.3	0.0	0.0
July.....	75	88	108	62	40	83	71	3.4	6	1.7	4.9	0.0	0.0
August.....	72	85	105	59	33	78	68	2.9	6	2.1	4.3	0.0	0.0
Summer mean.....	72	85	.....	59	.....	.....	.....	9.7	20	5.2	11.5	0.0	.....
September.....	64	78	102	50	21	71	58	1.5	3	2.0	2.4	0.0	0.0
October.....	51	65	93	37	6	57	44	1.8	3	1.8	2.0	0.8	8.0
November.....	33	45	75	21	-10	43	19	0.6	3	T.	0.5	3.5	10.0
Fall mean.....	49	63	.....	36	.....	.....	.....	3.9	9	3.8	4.9	4.3	.....
Annual mean.....	47	60	108	35	-33	.....	.....	22.8	54	14.9	32.9	20.9	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 96° or above.	Year.	Minimum below -20°.	Maximum 96° or above.
1894	Jan. 7, 8, 24.....	Apr. 28; May 13-15; June 27, 29, 30; July 2, 10, 17, 18, 22, 23, 25-27, 29-31; Aug. 6-10, 13, 28.	1900	None.....	May 11; June 21, 26; July 1, 3, 13; Aug. 1, 2, 20; Sept. 8.
1895	Feb. 7, 8.....	July 26; Aug. 12, 16, 26; Sept. 14, 17-19.	1901	(Dec. missing).....	June 23-26; July 3, 4, 8, 10-15, 17, 19-25, 27, 28 (Aug. and Sept. missing).
1896	(Feb. missing).....	July 2, 12, 14; Aug. 5, 7, 9, 10.	1902	(Jan. and Feb. missing) Dec. 28.	None.
1897	Jan. 26.....	June 12-14, 21; July 6-8, 28, 29, 31; Sept. 7.	1903	Feb. 16-18.....	July 20.
1898	None.....	June 22; July 23, 26; Aug. 30, 31.			
1899	Jan. 30, 31; Feb. 4, 5, 8-13, 23.	June 19; Aug. 28.			

MINNESOTA.

By THOMAS S. OUTRAM,
Section Director.

MINNESOTA.

Minnesota has within her boundaries 84,268.53 square miles, including 5,637.53 square miles of lake and river surface.

The only part of the State which might be termed mountainous is the northeast triangle included between the international boundary and Lakes Superior and Vermillion. The lowest land in the State is in the lower part of the valley of the St. Louis River, with an elevation above sea level of a little more than 600 feet; next to this in elevation come the valleys of the streams in southeastern Minnesota and the valley of the Red River of the North, the elevation of the Red River at the northern boundary being 776 feet. The greatest elevations are in the Mesabi Range, where the land rises to a height of 2,200 feet, and in the Coteau des Prairies in the southwest, with heights ranging from 1,800 to 1,900 feet. In general, the highest lands extend from the northeast corner to the southwest corner. About three-fifths of the State lies below the 1,000-foot level, and the average elevation of the whole State is about 1,200 feet.

Excepting the extreme northeastern and the extreme southeastern portions, the State is covered with the drift left by the many glaciers which occupied this region in the ice period.

The State has about 31,000 square miles of prairie lying in its western portion, while much of the eastern part, or about 52,000 square miles, was originally forest land. The line between prairie and forest runs in a very irregular course from the northeastern edge of the Red River Valley southeasterly to a point on the Mississippi near Hastings, and thence southward in the valleys of the rivers and streams.

The average mean temperature for the State is about 41°. The highest temperature ever recorded was 110° at New London on July 24, 1901, and the lowest was -59° at Leech Lake Dam on February 29, 1889.

The influence on temperature exerted by the comparatively slight differences in elevation must be small. The thousands of lakes within the State borders, ranging in size from an acre or two to areas of many square miles probably affect the temperatures in their immediate vicinity, but the effect on the State temperature must be almost nothing. Lake Superior, with its very cold water, undoubtedly has a marked influence on temperatures for a limited distance back from its shore line.

The rainfall is heavier in the eastern part of the State, gradually diminishing toward the west. The annual average rainfall for the State is 26 inches; for St. Paul it is 28.60 inches, and for Moorhead 24.50. Snow covers the whole State the greater part of the time every winter, the greatest depth being in the timbered region of the northeast, and the least depth in the southwest.

Destructive hailstorms occur almost yearly in the western part of the State, but in the eastern portion they are less frequent.

Thunderstorms frequently accompany the summer rains, and they are sometimes very severe.

The State is generally regarded as being beyond the northern limit of tornadoes, but at long intervals one of these much-feared storms causes death and destruction of property in the southern half.

Serious floods occur in the valley of the Red River of the North when late heavy snows melt rapidly in the region of the southern sources of the river before the ice toward the northern outlet has melted enough to prevent the formation of ice dams.

Killing frosts may be expected from September 1 in extreme northern portions to October 1 in the extreme south. The crops nearly always mature before danger of injury by the frosts, the exceptions being late seeded flax, late barley and corn, though when these crops are planted at the proper time, and corn is grown from seed that has been acclimated, the danger is much lessened. The frosts in spring cause no injury to vegetation, but they delay plowing and seeding by freezing the surface soil.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Aitkin.....	Sandy Lake Dam.	Central.....	516	Cottonwood (see Rolling Green).....		Southern.....	
Anoka (see Minneapolis).....		do.....		Crow Wing (see Sandy Lake Dam).....		Central.....	
Becker (see Park Rapids).....		Northern.....		Dakota (see St. Paul).....		Southern.....	
Beltrami (see Park Rapids).....		do.....		Dodge (see Grand Meadow).....		do.....	
Benton (see Collegeville).....		Central.....		Douglas (see Morris).....		Central.....	
Bigstone (see Morris).....		do.....		Faribault (see Rolling Green).....		Southern.....	
Blue Earth (see Rolling Green).....		Southern.....		Fillmore (see Grand Meadow).....		do.....	
Brown (see Bird Island).....		Central.....		Freeborn (see Grand Meadow).....		do.....	
Carlton (see Duluth).....		do.....		Goodhue (see St. Paul).....		do.....	
Carver (see Minneapolis).....		do.....		Grant (see Fergus Falls).....		Central.....	
Cass (see Sandy Lake Dam).....		do.....		Hennepin.....	Minneapolis.	do.....	522
Chippewa (see Bird Island).....		do.....		Houston (see Grand Meadow).....		Southern.....	
Chisago (see St. Paul).....		do.....		Hubbard.....	Park Rapids.	Central.....	515
Clay.....	Moorhead.	Red River Valley.	514	Isanti (see Minneapolis).....		Central.....	
Clearwater (see Park Rapids).....		Central.....					
Cook (see Mount Iron).....		Northern.....					

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Itasca (see Mount Iron).....		Northern.....		Pope (see Morris).....		Central.....	
Jackson (see Rolling Green).....		Southern.....		Ramsey.....	St. Paul.....	do.....	523
Kandakee (see Collegeville).....		Central.....		Red Lake (see Crookston).....		Northern.....	
Kandiyohi (see Bird Island).....		do.....		Redwood (see Bird Island).....		Southern.....	
Kittson (see Crookston).....		Red River Valley.....		Renville.....	Bird Island.....	Central.....	521
Lac qui Parle (see Bird Island).....		Southern.....		Rice (see Minneapolis).....		Southern.....	
Lake (see Duluth).....				Rock.....	Luverne.....	do.....	524
Lesueur (see Minneapolis).....		Northern.....		Roseau (see Crookston).....		Northern.....	
Lincoln (see Luverne).....		Southern.....		Scott (see Minneapolis).....		Southern.....	
Lyon (see Bird Island).....		do.....		Sherburne (see Collegeville).....		Central.....	
McLeod (see Bird Island).....		do.....		Sibley (see Bird Island).....		do.....	
Marshall (see Crookston).....		Central.....		St. Louis.....	Mount Iron.....	Northern.....	513
Martin.....	Rolling Green.....	Red River Valley.....		Stearns.....	Duluth.....	do.....	517
Meeker (see Collegeville).....		Southern.....	525	Steele (see Rolling Green).....	Collegeville.....	Central.....	520
Millelacs (see Collegeville).....		Central.....		Stevens.....		Southern.....	
Morrison (see Collegeville).....		do.....		Swift (see Morris).....	Morris.....	Central.....	519
Mower.....	Grand Meadow.....	do.....		Todd (see Collegeville).....		do.....	
Murray (see Luverne).....		Southern.....	526	Traverse (see Morris).....		do.....	
Nicollet (see Bird Island).....		do.....		Wabasha (see Grand Meadow).....		Southern.....	
Nobles (see Luverne).....		do.....		Wadena (see Park Rapids).....		Central.....	
Norman (see Crookston).....		do.....		Waseca (see Rolling Green).....		Southern.....	
Olmsted (see Grand Meadow).....		Red River Valley.....		Washington (see St. Paul).....		Central.....	
Ottertail.....	Fergus Falls.....	Southern.....		Watsonwan (see Rolling Green).....		Southern.....	
Pine (see Duluth).....		Central.....	518	Wilkin (see Fergus Falls).....		Central.....	
Pipestone (see Luverne).....		do.....		Winona (see Grand Meadow).....		Southern.....	
Polk.....	Crookston.....	Red River Valley.....	512	Wright (see Minneapolis).....		Central.....	
				Yellow Medicine (see Morris).....		do.....	

STATE SUMMARY.

Station.	Number.	Temperature.				Date.	Absolute minimum.	Date.	Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.				Maximum above 90°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Crookston.....	1	38	49	28	102	June, 1893.....	-45	February, 1893.....	9	182
Mount Iron.....	2	37	49	25	101	July, 1901.....	-42	February, 1899.....	3	205
Moorhead.....	3	37	49	27	102	July, 1894.....	-48	January, 1887.....	6	179
Park Rapids.....	4	38	49	27	100	July, 1901.....	-51	February, 1899.....	6	193
Sandy Lake Dam.....	5	39	50	27	98	do.....	-52	do.....	2	186
Duluth.....	6	39	47	32	99	July, 1883.....	-41	January, 1885.....	2	152
Fergus Falls.....	7	41	51	30	100	July, 1901.....	-39	February, 1893.....	7	176
Morris.....	8	41	52	31	102	do.....	-40	January, 1888.....	12	177
Collegeville.....	9	44	54	34	103	do.....	-24	February, 1899.....	13	159
Bird Island.....	10	43	54	31	105	do.....	-32	do.....	18	177
Minneapolis.....	11	45	54	36	102	do.....	-33	do.....	12	145
St. Paul.....	12	45	56	36	104	do.....	-41	January, 1888.....	7	158
Luverne.....	13	44	55	33	103	July, 1894.....	-35	February, 1899.....	12	170
Rolling Green.....	14	43	54	34	99	do.....	-33	do.....	9	162
Grand Meadow.....	15	44	56	32	107	July, 1901.....	-32	February, 1895.....	22	174

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Crookston.....	1	Sept. 18	May 19	Aug. 28	June 7	Inches. 22.6	Inches. 5.6	Inches. 10.7	Inches. 4.8	Inches. 1.5
Mount Iron.....	2	Sept. 12	June 4	Sept. 7	June 23	33.3	7.2	13.8	9.4	2.9
Moorhead.....	3	Sept. 20	May 14	Aug. 25	June 8	24.5	6.0	11.0	5.3	2.2
Park Rapids.....	4	Sept. 15	May 24	Aug. 26	June 11	26.9	7.4	12.4	5.1	2.0
Sandy Lake Dam.....	5	Sept. 17	May 19	Aug. 27	do.....	27.0	7.1	11.3	6.1	2.5
Duluth.....	6	Oct. 4	May 3	Sept. 15	June 8	29.9	7.3	11.6	7.7	3.3
Fergus Falls.....	7	Sept. 17	May 11	Sept. 8	June 2	23.2	6.3	10.5	4.7	1.7
Morris.....	8	Sept. 21	May 12	Aug. 23	June 7	23.0	6.3	10.8	4.3	1.5
Collegeville.....	9	Sept. 29	May 1	Sept. 11	May 19	21.9	6.3	9.2	5.1	1.3
Bird Island.....	10	Sept. 22	May 7	Sept. 9	June 7	23.9	6.0	10.0	6.1	1.8
Minneapolis.....	11	Oct. 7	Apr. 25	Sept. 13	May 20	28.4	7.5	11.6	6.8	2.5
St. Paul.....	12	Oct. 5	May 6	Sept. 20	May 25	28.6	7.4	11.4	7.0	2.8
Luverne.....	13	Sept. 19	May 11	Sept. 11	May 31	18.2	7.7	12.1	6.6	1.8
Rolling Green.....	14	Oct. 8	May 4	Sept. 12	do.....	26.3	8.6	9.5	5.2	3.0
Grand Meadow.....	15	Sept. 23	May 12	Sept. 11	June 7	32.7	9.7	13.2	7.3	2.5

MINNESOTA.

Red River Valley: POLK COUNTY. Station: CROOKSTON.

A. G. ANDERSON, Observer.

[Established by Signal Service September, 1889. Latitude, 47° 46' N. Longitude, 96° 35' W. Elevation, 863 feet.]

Crookston is situated on the Red Lake River, a little north of the center of the Red River Valley and near the eastern side of the said valley. Level prairie stretches for many miles in all directions and without any timber, except the little which skirts the river. The station is in the central part of the city of Crookston. The instrument shelter rests on posts and is about 4½ feet above the ground and 8 feet from the nearest building. The rain gage, which is 22 feet above ground, is on the northwest corner of a warehouse, which extends 32 feet north of a block of stores. The stores are 10 feet higher than the top of the rain gage. The maximum and minimum thermometers, the rain gage, and instrument shelter belong to the Weather Bureau. The mean temperature is derived from the readings of the maximum and minimum thermometers.

Temperature observations were taken from November, 1885, to April, 1886, but they have not been used in the accompanying table.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	11	21	49	3	-33	18	1	0.3	4		0.2	5.2	5.0	NW.
January.....	4	14	57	- 5	-44	14	- 4	0.5	4	0.6	1.6	5.6	8.0	NW.
February.....	8	17	51	- 4	-45	13	- 2	0.7	4	0.7	1.0	7.5	8.0	NW.
Winter mean.....	7	17	.....	- 2	.....	.....	.....	1.5	12	1.3	2.8	18.3	.....	NW.
March.....	20	31	58	10	-35	31	11	1.0	4	0.1	2.4	7.6	9.0	SE.
April.....	43	54	87	32	- 7	52	33	1.8	6	0.2	5.2	1.7	6.0	NW.
May.....	55	67	94	42	16	60	47	2.8	7	1.2	8.1	0.3	3.0	SE.
Spring mean.....	39	51	.....	28	.....	.....	.....	5.6	17	1.5	15.7	9.6	.....	SE.
June.....	64	76	102	53	31	70	60	3.8	9	3.5	3.0	0.0	0.0	NW.
July.....	69	80	101	57	38	74	65	3.6	8	2.3	1.0	0.0	0.0	NW.
August.....	66	78	98	53	32	72	63	3.3	7	1.8	3.1	0.0	0.0	SE.
Summer mean.....	66	78	.....	54	.....	.....	.....	10.7	24	7.6	7.1	0.0	.....	NW.
September.....	56	68	97	45	11	64	51	2.1	6	2.2	2.3	T.	0.2	SE.
October.....	44	55	87	34	9	51	39	2.0	5	2.9	1.0	0.7	6.0	NW.
November.....	23	32	66	15	-30	36	10	0.7	3	0.2	1.3	5.0	10.0	NW.
Fall mean.....	41	52	.....	31	.....	.....	.....	4.8	14	5.3	4.6	5.7	.....	NW.
Annual mean.....	38	49	102	28	-45	.....	.....	22.6	67	15.7	30.2	33.6	10.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 24	June 12; July 11, 15-17, 23; Sept. 1.	1898	None	None.
1895	Jan. 24, 27, 30; Feb. 1-5, 7, 8.	None.	1899	Feb. 7-11	Do.
1896	Jan. 4; Mar. 13; Nov. 29; Dec. 1.	Do.	1900	None	June 25; July 21.
1897	Jan. 24, 26; Feb. 26, 28; Feb. 14, 15.	June 13, 14.	1901	Dec. 14, 15	July 13, 14.
			1902	Jan. 27	None.
			1903	Feb. 16	Do.

MINNESOTA.

Northern Section: ST. LOUIS COUNTY. Station: MOUNT IRON.

OLIVER IRON MINING COMPANY, Observer.

[Established by Weather Bureau November, 1893. Latitude, 47° 33' N. Longitude, 93° 42' W. Elevation, 1,519 feet.]

This station is near the northeastern limits of the village of Mount Iron. The village itself is located on comparatively level ground, but the surroundings are very rolling, with patches of scant timber. About 2 miles north of the village is a range of hills, their elevation being some 300 feet higher than the surrounding country.

The station outfit consists of maximum and minimum thermometers, rain gage, and instrument shelter, all of which are the property of the Weather Bureau. The instrument shelter is about 25 feet east of the office of the Oliver Iron Mining Company. The thermometers are 4 feet 8 inches above the ground. The present location of the shelter is not considered as good as it should be. The rain gage is 15 feet north of the instrument shelter, the top being 2 feet 6 inches from the ground. The mean temperature is derived from the maximum and minimum temperatures.

Monthly and annual mean temperatures and highest and lowest monthly means, mean precipitation, and total amounts for the driest and wettest years are for the period of observation January 1, 1894 to December 31, 1903; the remaining data are for the period January 1, 1897, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	11	19	48	-2	-38	17	3	1.2	5	0.6	1.7	11.2	9.0	NW.
January.....	6	19	49	-4	-41	13	0	1.0	4	0.2	1.6	9.9	6.0	NW.
February.....	9	20	60	-4	-42	15	1	0.7	3	0.3	0.4	7.8	12.0	NW.
Winter mean.....	9	19		-3				2.9	12	1.1	3.7	28.9		NW.
March.....	21	32	60	9	-25	32	11	1.3	4	3.2	1.8	7.1	6.0	N.
April.....	41	53	86	27	4	45	33	1.9	4	1.4	5.6	1.9	3.0	N.
May.....	52	65	92	38	11	56	47	4.0	8	1.6	6.8	0.1	1.0	N.
Spring mean.....	38	50		25				7.2	16	6.2	14.2	9.1		N.
June.....	60	74	97	46	25	66	57	4.6	9	9.0	2.5	0.0	0.0	S.
July.....	65	80	101	51	35	68	61	5.0	9	4.2	4.4	0.0	0.0	SW.
August.....	62	75	95	49	33	71	57	4.2	8	1.9	4.8	0.0	0.0	S.
Summer mean.....	62	76		49				13.8	26	15.1	11.7	0.0		S.
September.....	54	67	88	41	18	60	50	4.5	9	3.1	2.7	0.1	0.5	SW.
October.....	42	55	76	32	17	51	37	3.5	7	3.4	4.9	0.1	0.5	S.
November.....	22	33	68	14	-24	34	14	1.4	4	1.5	2.2	6.3	10.5	NW.
Fall mean.....	39	52		29				9.4	20	8.0	9.8	6.5		
Annual mean.....	37	49	101	25	-42			33.3	74	30.4	39.4	44.5	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1897	Jan. 18, 22-24; Dec. 16, 21.	June 13, 14.	1900	Jan. 31; Dec. 30, 31...	June 24; Aug. 4.
1898	Dec. 29-31.....	None.	1901	Jan. 2; Dec. 13-15....	July 14, 15, 19.
1899	Jan. 6, 26, 28-31; Feb. 1, 4-11.	Do.	1902	Jan. 27-29.....	None.
			1903	Feb. 16, 17; Dec. 13....	Do.

MINNESOTA.

Red River Valley: CLAY COUNTY. Station: MOORHEAD.

H. W. GRASSE, Observer.

[Established by Signal Service January 1, 1881. Latitude, 46° 52' N. Longitude, 96° 44' W. Elevation, 903 feet.]

Moorhead is situated on the east side of the Red River of the North. This station was established January 1, 1881, and located in the Merchants' Bank. It was moved July 1, 1890, to the third floor of the First National Bank Building, a three-story brick structure, corner of Front and Sixth streets.

The exposed instruments, consisting of dry and wet bulb, maximum and minimum thermometers, and thermograph, are placed on the roof of the building, which is 42 feet high, in a standard shelter 10 feet above the roof and 52 feet above the ground. The rain gage, snow gage, anemometer, and wind vane are also on the roof. The top of rain gage is 44 feet from the ground, the anemometer cups 60 feet.

Snowfall data, ten years; humidity, fifteen years. Remainder of tabulated data is from the full period of observation, twenty-three years, January 1, 1881, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr.	P. ct.	Gr.	S.
December.....	12	21	55	- 2	-36	21	0	0.7	9	0.1	1.4	5.7	12.0	88	0.69	84	0.87	N.
January.....	2	12	52	- 7	-48	16	-10	0.7	8	1.1	1.3	5.9	10.0	88	0.46	86	0.60	N.W.
February.....	6	16	59	- 4	-47	17	- 4	0.8	9	0.4	0.8	6.0	10.4	88	0.46	85	0.63	N.W.
Winter mean.....	7	16	.....	- 3	.....	.....	.....	2.2	26	1.6	3.5	17.6	.....	88	0.54	85	0.70	N.W.
March.....	21	30	68	11	-28	33	11	1.1	8	1.0	2.8	9.6	8.6	87	0.86	81	1.20	N.
April.....	42	53	91	32	-13	50	32	2.3	10	1.4	1.7	3.2	6.0	83	1.89	64	2.43	N.
May.....	54	66	96	42	14	60	47	2.6	10	2.2	5.3	0.6	2.0	79	3.00	54	3.21	N.
Spring mean.....	39	50	.....	28	.....	.....	.....	6.0	28	4.6	9.8	13.4	.....	83	1.92	66	2.28	N.
June.....	64	76	101	53	28	69	62	4.1	16	3.0	5.4	0.0	0.0	83	4.46	60	4.79	S.
July.....	68	79	102	56	39	72	63	3.9	10	3.5	4.9	0.0	0.0	85	5.22	63	5.90	S.E.
August.....	66	78	100	54	32	73	60	3.0	9	0.9	2.5	0.0	0.0	87	4.67	60	5.15	S.E.
Summer mean.....	66	78	.....	54	.....	.....	.....	11.0	35	7.4	12.8	0.0	.....	85	4.78	61	5.28	S.E.
September.....	55	69	98	41	17	66	53	2.2	8	0.6	1.2	0.1	1.4	85	3.35	61	3.75	S.E.
October.....	44	54	90	34	3	52	38	2.2	8	2.2	4.0	1.1	2.0	83	2.12	68	2.58	S.E.
November.....	26	38	72	15	-26	38	10	0.9	7	0.1	2.5	5.9	14.0	89	1.10	81	1.44	N.W.
Fall mean.....	42	54	.....	30	.....	.....	.....	5.3	23	2.9	7.7	7.1	.....	86	2.19	70	2.59	S.E.
Annual mean.....	37	49	102	27	-48	.....	.....	24.5	112	16.5	33.8	38.1	14.0	86	2.36	71	2.71	S.E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 24.....	May 13; June 12; July 11, 16, 23, 29; Sept. 1.	1899	Feb. 8, 9, 11.....	July 19, 22.
1895	Feb. 3-5, 7, 8.....	Sept. 7.	1900	.....	May 12; June 25; July 21.
1896	.....	June 13; Sept. 3, 29.	1901	Dec. 14.....	July 14.
1897	Feb. 26; Mar. 15.....	June 23.	1902	.....	.....
1898	.....	.....	1903	Jan. 16.....	.....

MINNESOTA.

Northern Section: HUBBARD COUNTY. Station: PARK RAPIDS.

P. A. WALLING, Observer.

[Established by the Weather Bureau January, 1893. Latitude, 46° 57' N. Longitude, 95° 10' W. Elevation, 1,300 feet.]

The surface of the country in this part of the State is nearly level.

The instruments are all standard and belong to the Weather Bureau. The maximum and minimum thermometers are exposed in a standard Weather Bureau instrument shelter, which stands on posts. The thermometers are 5 feet from the ground. The shelter is 4 feet north of a large store building. The rain gage stands on the ground and is about 30 feet from any building.

The mean temperature was calculated from the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 11	° F. 21	° F. 44	° F. 1	° F. -44	° F. 19	° F. -4	In. 0.7	7	In. 0.2	In. 0.3	In. 6.4	In. 9.1	NW.
January.....	7	17	45	-4	-42	14	-2	0.7	7	0.4	0.6	6.9	12.0	NW.
February.....	7	19	50	-6	-51	14	-1	0.6	7	0.2	0.3	5.7	8.1	NW.
Winter mean.....	8	19		-3				2.0	21	0.8	1.2	19.0		NW.
March.....	21	32	56	12	-37	31	9	1.3	9	0.1	0.9	8.3	8.0	NW.
April.....	41	52	85	29	-8	47	32	2.5	10	0.5	2.4	5.4	15.0	NW.
May.....	54	66	91	41	21	57	51	3.6	10	3.2	8.0	0.8	4.8	SE.
Spring mean.....	39	50		27				7.4	29	3.8	11.3	14.5		NW.
June.....	62	75	99	51	27	68	57	4.6	11	7.1	9.1	0.0	0.0	S.
July.....	68	79	100	56	39	71	65	3.9	10	3.9	3.4	0.0	0.0	S.
August.....	64	76	94	52	32	71	60	3.9	9	2.8	8.6	0.0	0.0	NW.
Summer mean.....	65	77		53				12.4	30	13.8	21.1	0.0		S.
September.....	55	67	94	43	20	62	51	2.0	8	2.3	1.7	0.2	1.8	NW.
October.....	43	54	84	33	4	53	38	2.3	9	0.2	2.8	0.6	1.4	NW.
November.....	24	33	67	14	-32	36	12	0.8	7	0.9	0.5	6.1	7.5	NW.
Fall mean.....	41	51		30				5.1	24	3.4	5.0	6.9		NW.
Annual mean.....	38	49	100	27	-51			26.9	104	21.8	38.6	40.4	15.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 6, 7, 23, 24.....	July 11, 16, 23, 26.	1898	Feb. 18; Dec. 30, 31...	None.
1895	Jan. 24, 27, 30, 31; Feb. 1-5, 9.	None.	1899	Jan. 7, 27-31; Feb. 3, 6-12.	Do.
1896	Jan. 3, 4; Mar. 13, 14; Nov. 29; Dec. 1, 2.	Do.	1900	Feb. 9.....	Do.
1897	Jan. 23-27; Feb. 25, 28, 28; Mar. 15; Dec. 18.	Do.	1901	Dec. 14, 15, 18.....	July 13, 14, 19.
			1902	Jan. 27, 28.....	None.
			1903	Feb. 15-17.....	Do.

MINNESOTA.

Middle Section: AITKIN COUNTY. Station: SANDY LAKE DAM.

JOHN ELLINGSEN, Observer.

[Established by U. S. Engineer Department, July, 1892. Latitude, 46° 44' N. Longitude, 93° 18' W. Elevation, 1,229 feet.]

This station is at one of the reservoir dams erected by the United States Engineer Department for controlling the waters of the upper Mississippi. While situated in the timber region, the immediate surroundings for a distance ranging from 1 to 3 miles are almost free from trees. The station is situated at the foot of Sandy Lake, which lies southeast and east of the station. In general the surface is rolling, with marshy land between the small hills. The maximum and minimum thermometers are exposed in a shelter very much like the pattern used by the Weather Bureau. This shelter stands with its bottom about 2 feet from the ground on a slight elevation fully a hundred feet from any building and 800 feet from any tree, so there is free circulation of air about the instruments. The rain gage is situated a long distance from buildings or trees and its top is 2 feet from the ground.

The mean temperature was calculated from readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	12	20	48	4	-45	21	5	0.9	6	0.9	1.4	7.8	6.2	NW.
January.....	7	21	48	-4	-52	14	0	0.9	5	1.2	0.7	11.0	8.0	NW.
February.....	8	20	52	-5	-49	13	1	0.7	5	0.2	0.8	7.9	11.0	NW.
Winter mean.....	9	20		-2				2.5	16	2.3	1.9	26.7		NW.
March.....	22	34	58	9	-39	30	10	1.5	7	2.3	2.5	9.8	11.5	NW.
April.....	41	54	79	28	-9	48	32	2.3	6	5.6	2.9	3.9	8.2	SE.
May.....	54	66	88	41	13	57	49	3.3	9	2.5	3.7	0.2	2.5	E.
Spring mean.....	39	51		26				7.1	22	10.4	9.1	13.9		
June.....	63	73	95	50	29	69	58	3.2	8	0.7	1.6	0.0	0.0	SE.
July.....	67	78	98	56	39	71	64	4.0	9	T.	6.4	0.0	0.0	NW.
August.....	64	77	91	53	35	72	60	4.1	8	0.1	4.5	0.0	0.0	NW.
Summer mean.....	65	76		53				11.3	25	0.8	12.5	0.0		NW.
September.....	56	67	90	45	24	62	52	2.4	7	0.5	6.3	0.0	0.0	S.
October.....	44	56	79	34	11	56	39	2.6	6	5.4	3.8	0.9	8.0	NW.
November.....	25	35	70	18	-32	21	5	1.1	5	0.6	0.8	7.1	6.0	NW.
Fall mean.....	42	53		32				6.1	18	6.5	10.9	8.0		NW.
Annual mean.....	39	50	98	27	-52			27.0	81	20.0	34.4	48.6	11.5	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	None.	July 16, 26.	1899	Jan. 1, 27, 29-31; Feb. 7-12.	None.
1895	Jan. 8, 30; Feb. 1-5, 9.	None.	1900	None.	Aug. 4.
1896	Jan. 4, 5; Nov. 28; Dec. 12.	Do.	1901	Jan. 2; Dec. 14, 15, 18, 20.	July 13, 14, 20.
1897	Jan. 12, 24-27; Feb. 25, 28; Mar. 15.	Do.	1902	Jan. 27, 28.	None.
1898	Dec. 30, 31.	Do.	1903	Feb. 15-17.	Do.

MINNESOTA.

Lake Region: ST. LOUIS COUNTY. Station: DULUTH.

H. W. RICHARDSON, Local Forecaster.

[Established by the Signal Service October 18, 1870. Latitude, 46° 47' N. Longitude, 92° 6' W. Elevation, 684 feet.]

Duluth lies on and at the base of a range of hills that rise 600 to 880 feet above the level of Lake Superior, the trend of the range being northeast and southwest; the city proper extending along the west bank of the St. Louis River, St. Louis and Superior Bays and Lake Superior, including Grassy, Rices, and Minnesota points.

From October, 1870, to June, 1882, the station was located in the Edmonds Block, then the Metropolitan Block, to January 29, 1895, and in the Post-Office Building to December 31, 1903. Since the latter date the Weather Bureau has utilized its own building, located on the east side of Seventh avenue west, between Seventh and Eighth Streets. The grounds are of a bench-like formation near the top of an otherwise sloping hillside.

The anemometer, wind vane, and sunshine recorder are located on the flat roof of the building, while the thermometer shelter and rain and snow gages are on the ground about 50 feet in the rear of the building. The rain and snow gages are 3 feet above the ground, 45 feet southwest of the office building. The thermometers are 10.6 feet above the sod. The height of the anemometer cups above the ground is 47.1 feet and of the wind vane 48.3 feet.

Tabulated data are from the following periods of observation: All maximum and minimum temperature data, thirty years; snowfall, twenty-one years; humidity, fifteen years. Remainder of data is from full period of observation, thirty-three years, October 18, 1870, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	17	25	54	10	-34	33	-5	1.3	11	0.2	3.9	8.6	5.0	82	0.85	77	1.00	SW.
January.....	11	19	51	2	-41	21	-3	1.0	11	0.4	0.7	10.3	10.4	82	0.61	76	0.75	SW.
February.....	14	22	58	5	-36	31	-2	1.0	10	0.9	1.5	9.2	8.0	82	0.61	74	0.76	NE.
Winter mean.....	14	22		6				3.3	32	1.5	6.1	28.1		82	0.69	76	0.83	SW.
March.....	24	32	64	16	-26	38	15	1.6	10	0.8	1.9	10.6	8.0	80	0.94	70	1.19	NE.
April.....	38	46	81	32	3	45	33	2.2	10	0.4	0.9	3.9	8.0	78	1.78	67	1.91	NE.
May.....	48	57	88	40	25	54	42	3.5	12	3.3	8.0	0.8	6.0	76	2.60	64	2.70	NE.
Spring mean.....	37	45		29				7.3	32	4.5	10.8	15.3		78	1.77	67	1.93	NE.
June.....	58	66	92	49	33	63	54	4.4	14	3.5	5.6	0.0	0.0	78	3.65	67	3.85	NE.
July.....	66	75	99	57	45	72	61	3.7	12	1.3	10.4	0.0	0.0	78	4.73	64	4.64	NE.
August.....	65	72	95	57	40	70	60	3.5	11	3.4	1.6	0.0	0.0	80	4.60	68	4.92	NE.
Summer mean.....	63	71		54				11.6	37	8.2	17.6	0.0		79	4.35	66	4.47	NE.
September.....	56	64	94	49	29	63	52	3.6	12	1.2	5.2	T.	T.	80	3.62	69	3.83	NE.
October.....	45	52	80	39	8	54	41	2.6	10	3.4	4.0	0.3	1.4	80	2.45	70	2.57	NE.
November.....	29	36	73	23	-29	41	20	1.5	10	0.9	1.6	8.1	10.0	82	1.39	76	1.54	SW.
Fall mean.....	43	51		37				7.7	32	5.5	10.8	8.4		81	2.49	72	2.65	NE.
Annual mean.....	39	47	99	32	-41			29.9	133	19.7	45.3	51.8	10.4	80	2.53	70	2.47	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 90° or above.	Year.	Minimum below -30°.	Maximum 90° or above.
1894	None.....	July 10, 17, 18, 23, 27; Aug. 26; Sept. 1.	1899	Jan. 30; Feb. 8, 9.....	None.
1895	.....do.....	None.	1900	.....do.....	June 23; July 30; Aug. 4.
1896	.....do.....	June 30; Aug. 3.	1901	.....do.....	July 14, 15, 19-21.
1907	.....do.....	None.	1902	.....do.....	None.
1898	.....do.....	July 17.	1903	.....do.....	July 7.

MINNESOTA.

Middle Section: OTTER TAIL COUNTY. Station: FERGUS FALLS.

CHARLES KISSINGER, Observer.

[Established by Signal Service in October, 1888. Latitude, 46° 16' N. Longitude, 96° 06' W. Elevation, 1,210 feet.]

This station is in the center of the city of Fergus Falls. The city is in the park region of Minnesota, some 10 miles east of the level lands of the Red River Valley and within 2 miles of the watershed between the waters flowing to the Gulf of Mexico and those flowing to Hudson Bay. In general the contour of the country is rolling. The instruments in use consist of wet and dry bulb thermometers, maximum and minimum thermometers, and rain gage. An instrument shelter is not used, the thermometers being attached to a frame building on Main street, at an elevation of 7 feet above the ground and separated from the building by an air space of several inches. The rain gage is about the center of the flat roof of a two-story building across the street from the building to which the thermometers are attached.

The mean temperature was calculated from readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	13	23	47	4	-35	22	7	0.6	9	0.2	0.8	4.9	3.1	NW.
January.....	9	19	47	-1	-31	18	0	0.6	10	0.6	0.9	5.7	8.0	NW.
February.....	9	20	55	-1	-39	16	4	0.5	8	0.2	0.6	5.3	4.0	NW.
Winter mean.....	10	21		1				1.7	27	1.0	2.3	15.9		NW.
March.....	24	34	61	13	-31	33	14	1.2	10	1.7	2.0	7.1	3.6	NW.
April.....	44	55	86	33	2	51	35	2.4	10	4.1	6.8	3.9	9.1	SE.
May.....	57	68	90	46	27	60	53	2.7	11	1.4	6.9	T.	T.	SE.
Spring mean.....	42	52		31				6.3	31	7.2	15.7	11.0		SE.
June.....	65	77	95	54	29	70	62	3.6	12	2.1	6.9	0.0	0.0	SE.
July.....	70	81	100	59	41	74	67	3.9	10	0.4	5.3	0.0	0.0	SE.
August.....	67	78	95	56	37	74	64	3.0	10	0.4	1.3	0.0	0.0	SE.
Summer mean.....	67	79		56				10.5	32	2.9	13.5	0.0		SE.
September.....	58	69	93	47	21	66	54	2.0	8	1.0	2.7	T.	0.5	NW.
October.....	46	56	84	36	7	54	41	2.0	9	2.6	2.0	0.6	2.5	NW.
November.....	26	36	70	18	-23	38	14	0.7	6	0.5	2.1	4.6	6.0	NW.
Fall mean.....	43	54		34				4.7	23	4.1	6.8	5.2		NW.
Annual mean.....	41	51	100	30	-39			23.2	113	15.2	38.3	32.1	9.1	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 24.....	July 11, 23, 26.	1899	Feb. 8, 9, 11.....	None.
1895	Feb. 3-5, 7-9.....	None.	1900	None.....	Aug. 4.
1896	None.....	Do.	1901	Dec. 14.....	July 13, 14.
1897	Feb. 26; Mar. 14, 15.....	Do.	1902	None.....	July 29.
1898	None.....	Do.	1903	Feb. 16.....	None.

MINNESOTA.

Middle Section: STEVENS COUNTY. Station: MORRIS.

D. T. WHEATON, Observer.

[Established by Signal Service April, 1885. Latitude, 45° 30' N. Longitude, 95° 58' W. Elevation, 1,170 feet.]

This station is in the eastern part of the city of Morris, on a ridge bearing northeast and southwest, which is about 40 feet higher than the country toward the west. Toward the east the country slopes for about half a mile to the valley of the Pomme de Terre River, which is about a mile away. East of Morris the country is somewhat rolling, but toward the west it is very flat.

The instrumental outfit is as follows: Dry thermometer, maximum and minimum thermometers, rain gage, and standard instrument shelter. The instrument shelter is attached to the northeast side of a shed so that the thermometers are about 6 feet above the ground. The rain gage is about 60 feet east of the shed already mentioned, 30 feet east of a barn shed, and 50 feet south of a cottonwood tree; the top of the gage is 4 feet above the ground.

The mean temperature was derived from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1886, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 15	° F. 25	° F. 52	° F. 7	° F. -34	° F. 24	° F. 3	In. 0.6	4	In. T.	In. 0.2	In. 5.7	In. 8.0	N.
January.....	8	17	52	2	-40	20	-8	0.4	4	0.4	0.4	4.7	8.0	N.
February.....	10	20	60	0	-40	18	2	0.5	4	0.1	0.3	4.9	6.0	N.
Winter mean.....	11	21	.....	3	.....	.....	.....	1.5	12	0.5	0.9	15.3	.....	N.
March.....	24	32	71	15	-28	34	14	1.0	6	T.	0.3	6.5	15.0	N.
April.....	45	56	88	34	4	53	35	2.8	7	1.7	1.7	3.4	12.0	S.
May.....	56	68	94	36	20	62	49	2.5	10	1.7	5.5	0.2	1.0	S.
Spring mean.....	42	52	.....	28	.....	.....	.....	6.3	23	3.4	7.5	10.1	.....	S.
June.....	66	77	98	56	30	71	63	3.4	10	6.4	4.9	0.0	0.0	S.
July.....	71	82	102	60	38	75	66	4.2	9	2.0	1.1	0.0	0.0	S.
August.....	68	80	99	57	32	76	64	3.2	9	1.8	11.7	0.0	0.0	S.
Summer mean.....	68	80	.....	58	.....	.....	.....	10.8	28	10.2	17.7	0.0	.....	S.
September.....	60	71	97	48	20	66	54	2.2	7	1.8	0.8	0.0	0.0	S.
October.....	46	57	87	36	1	56	40	1.5	8	T.	1.7	0.2	2.0	N.
November.....	26	36	74	18	-27	40	16	0.6	4	1.0	1.3	3.4	4.0	N.
Fall mean.....	44	55	.....	34	.....	.....	.....	4.3	19	2.8	3.8	3.6	.....	N.
Annual mean.....	41	52	102	31	-40	.....	.....	22.9	82	16.9	29.9	20.0	15.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	Jan. 24.....	June 14; July 11, 15-18, 22, 23, 26, 29, 30; Aug. 1.	1899	Feb. 8, 9, 11.....	July 19, 20.
1895	Feb. 3, 7, 8.....	July 5; Aug. 25; Sept. 19, 20.	1900	None.	June 24, 25; July 30; Aug. 3, 4.
1896	None.	Aug. 4.	1901	Dec. 14.....	July 13, 14, 19, 20, 22-24.
1897	Feb. 26.....	June 13; July 8.	1902	None.	None.
1898	None.	Sept. 2.	1903	Feb. 16.....	Do.

MINNESOTA.

Middle Section: STEARNS COUNTY. Station: COLLEGEVILLE.

St. JOHN'S UNIVERSITY, Observer.

[Established by Weather Bureau May, 1892. Latitude, 45° 38' N. Longitude, 94° 27' W. Elevation, 1,214 feet.]

The surface of the country about this station is rolling, the uneven surface being due to glacial action.

This station is under the direction of one of the professors in St. John's University.

The instrumental outfit belongs to the university and consists of maximum and minimum thermometers, wet and dry thermometers, rain gage, and an instrument shelter, which is attached outside a window on the north side of the meteorological office; the thermometers are read through the window. The thermometers are about 69 feet above the ground. The rain gage is on the roof of the building.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December	18	30	50	9	-27	26	13	0.4	5	In.	In.	In.	In.	NW.
January	14	26	49	4	-28	22	6	0.5	6	T.	0.5	0.2	4.3	NW.
February	14	25	58	4	-34	21	8	0.4	4	0.1	0.5	4.9	5.5	NW.
Winter mean	16	27		6				1.3	15	0.6	1.2	13.9		NW.
March	28	38	76	18	-16	35	18	1.3	7	T.	3.4	9.1	8.2	NW.
April	46	56	84	35	7	52	39	2.4	9	1.4	2.7	1.4	6.5	SE.
May	58	69	89	47	29	63	55	2.6	9	2.3	4.0	T.	0.8	SE.
Spring mean	44	54	83	33				6.3	25	3.7	10.2	10.5		SE.
June	67	78	95	56	34	73	63	2.9	10	3.2	2.2	0.0	0.0	SW.
July	72	83	103	61	48	75	69	3.5	9	1.9	8.8	0.0	0.0	S.
August	69	80	100	58	39	75	64	2.8	9	1.6	2.4	0.0	0.0	NW.
Summer mean	69	80		58				9.2	28	6.7	13.4	0.0		
September	60	71	98	50	26	66	56	2.4	8	4.0	3.6	0.0	0.0	S.
October	49	58	83	39	11	56	44	1.9	8	T.	2.2	0.1	0.8	NW.
November	30	39	72	23	-13	41	19	0.8	6	1.0	0.1	4.4	2.5	NW.
Fall mean	46	56		37				5.1	22	5.0	5.9	4.5		NW.
Annual mean	44	54	103	34	-34			21.9	90	16.0	30.7	28.9	8.2	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -30°.	Maximum 95° or above.	Year.	Minimum below -30°.	Maximum 95° or above.
1894	None	June 21; July 11, 15-18, 23; Aug. 6, 8, 19; Sept. 1, 2.	1899	Feb. 8, 9, 11.	None.
1895	do	July 5; Aug. 13; Sept. 10, 11, 17, 19.	1900	None	July 30; Aug. 3, 4.
1896	do	June 17; July 12; Aug. 4.	1901	do	July 13-15, 19, 20, 23, 24.
1897	do	July 19.	1902	do	None.
1898	do	None.	1903	do	Do.

MINNESOTA.

Middle Section: RENVILLE COUNTY. Station: BIRD ISLAND.

F. L. PUFFER, M. D., Observer.

[Established by the Signal Service January, 1885; discontinued in August, 1887; reopened by the Weather Bureau in March 1902. Latitude, 44° 48' N. Longitude, 94° 38' W. Elevation, 1,030 feet.]

This station is near the eastern limits of the village of Bird Island. In this village the houses are scattered and set at considerable distances from one another. The surrounding country is slightly undulating or nearly flat prairie, almost treeless, except for the artificial groves.

The instrumental outfit is as follows: Maximum and minimum thermometers, rain gage, and instrument shelter. The instruments are all standard. The shelter is 70 feet southwest of the residence of the observer, set on posts so that the thermometers are 4 feet above the ground. The rain gage is 10 feet east of the shelter, with its top 2 feet above the ground.

The mean temperature was derived from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	16	26	50	7	-25	24	11	0.6	3	T.	0.7	3.0	6.0	NW.
January.....	12	23	53	2	-27	21	3	0.6	4	0.4	0.5	4.7	4.0	NW.
February.....	13	23	64	3	-32	21	6	0.6	3	0.2	0.1	5.3	7.5	NW.
Winter mean.....	14	24		4				1.8	10	0.6	1.3	13.0		NW.
March.....	27	37	77	16	-25	34	16	1.4	6	0.7	2.9	8.4	7.0	NW.
April.....	46	58	88	34	5	52	38	2.6	8	1.3	2.5	3.7	8.0	NE.
May.....	58	70	93	45	24	62	54	3.0	9	3.6	4.7	T.	T.	NW.
Spring mean.....	43	55		32				6.0	23	5.6	10.1	12.1		NW.
June.....	66	71	96	54	31	69	60	3.6	8	2.7	3.6	0.0	0.0	NW.
July.....	72	82	105	59	38	77	68	3.3	7	1.4	5.9	0.0	0.0	SW.
August.....	69	82	100	57	36	77	64	3.1	7	2.4	3.9	0.0	0.0	NW.
Summer mean.....	67	78		57				10.0	22	6.5	13.4	0.0		NW.
September.....	61	73	85	47	17	66	56	3.3	8	4.1	7.0	0.0	0.0	NW.
October.....	48	61	72	35	5	57	43	2.0	6	T.	2.6	0.2	1.5	NW.
November.....	29	39	50	18	-17	41	18	0.8	1	1.7	0.3	3.6	3.5	NW.
Fall mean.....	46	58		33				6.1	18	5.8	9.9	3.8		NW.
Annual mean.....	43	54	105	31	-32			23.9	73	18.4	34.7	8.0		NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 7, 8, 24, 25.....	June 30; July 11, 16-18, 22, 26; Aug. 6.	1899	Jan. 30; Feb. 6-12....	July 10, 21; Aug. 10; Sept. 6.
1895	Jan. 8, 24, 27, 28; Feb. 1-5, 7-10.	July 5; Aug. 13; Sept. 10, 17.	1900	Feb. 9.....	June 6; Aug. 1-4, 8, 9.
1896	None.....	Aug. 4, 9.	1901	Dec. 14, 15.....	July 10, 13, 14, 16, 17, 19-24; Aug. 16, 18, 21.
1897	Jan. 24-27; Feb. 26; Mar. 14.	None.	1902	Jan. 27; Feb. 2; Dec. 26.	None.
1898	None.....	July 22; Aug. 22, 31; Sept. 2.	1903	Feb. 16, 17; Dec. 13...	Do.

MINNESOTA.

Southern Section: HENNEPIN COUNTY. Station: MINNEAPOLIS.

T. S. OUTRAM, Section Director.

[Established November 1, 1890. Latitude, 44° 59' N. Longitude, 93° 18' W. Elevation, 850 feet.]

Since its establishment this station has been in the Federal Building, which is near the business center of the city of Minneapolis. The country about Minneapolis is rolling, with many lakes, the low hills and the lakes both having had their origin in glacial action.

At present the shelter in which the thermometers are exposed is in a temporary position about 100 feet above the pavement, and though the rain and snow gages are on the nearly flat roof of the Federal Building they are not yet permanently placed.

The sunshine recorder, wind vane, and anemometer are on the highest tower of the twelve-story Guaranty Building, just across the alley from this building, the instruments being connected with the self-register in the office by cable.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	20	27	54	12	-27	30	13	1.0	8	0.2	0.8	5.9	8.0	NW.
January.....	15	24	51	6	-26	24	4	0.7	8	0.9	T.	6.9	6.5	NW.
February.....	15	24	64	7	-33	23	8	0.8	7	0.4	1.4	8.2	7.4	NW.
Winter mean.....	17	25		8				2.5	23	1.4	2.2	21.0		NW.
March.....	28	37	76	20	-12	36	17	1.8	9	0.4	1.0	10.8	12.0	NW.
April.....	47	57	86	38	12	53	40	2.5	10	1.7	1.3	3.0	8.5	NE.
May.....	59	69	92	48	28	64	52	3.2	12	2.9	6.7	0.2	3.0	NE.
Spring mean.....	45	54		35				7.5	31	5.0	9.0	14.0		NE.
June.....	68	77	96	58	36	73	64	3.7	11	3.7	6.7	0.0	0.0	S.
July.....	72	82	102	62	44	77	66	4.2	9	4.4	11.9	0.0	0.0	S.
August.....	70	80	99	60	42	77	65	3.7	9	1.9	4.7	0.0	0.0	S.
Summer mean.....	70	80		60				11.6	29	10.0	23.3	0.0		S.
September.....	62	72	96	52	34	68	57	3.2	8	4.3	1.4	0.0	0.0	S.
October.....	50	60	86	41	8	58	45	2.6	10	T.	0.4	T.	0.4	S.
November.....	31	39	73	23	-13	41	23	1.0	7	0.7	0.4	5.0	9.0	NW.
Fall mean.....	48	57		39				6.8	25	5.0	2.2	5.0		S.
Annual mean.....	45	54	102	36	-33			28.4	108	21.4	36.7	41.0	12.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 24, 25.....	July 11, 16, 23, 26, 27; Aug. 6, 8.	1899	Jan. 27-30; Feb. 7-12...	Aug. 10.
1895	Jan. 27; Feb. 1, 3, 5, 9.	Sept. 10, 11, 17.	1900	None.....	July 30.
1896	None.....	Aug. 4.	1901	Dec. 13-15.....	June 26; July 13, 14, 19-24.
1897	Jan. 24-26; Feb. 26....	June 13; July 8.	1902	None.....	None.
1898	Dec. 31.....	Aug. 22, 30; Sept. 2.	1903	Feb. 16-18.....	Do.

MINNESOTA.

Central District: RAMSEY COUNTY. Station: ST. PAUL.

W. E. OLIVER, Observer.

[Established by the Signal Service in November, 1870. Latitude, 44° 58' N. Longitude, 93° 3' W. Elevation, 756 feet.]

The station is located in a 6-story building on a bench of land within the city of St. Paul, and is surrounded on three sides by low-lying hills about one-half mile away and not more than 100 to 200 feet above the ground on which the building stands.

The thermometers and thermograph are placed in the standard roof instrument shelter, 114 feet above ground. All the instruments, except the barometer and barograph, are located on the roof of the building and are free from obstructions. The top of the rain gage is 96 feet above ground. The anemometer cups are 124 feet above ground.

The station was established in 1870 in a building on the corner of Third and Wabasha streets; in 1871 was moved to a building at 208 Third street; in 1878, to the Ingersoll Block, Third and Wabasha streets; in 1883, to the Presley Block Third street; in 1885, to its present quarters on the sixth floor of the Chamber of Commerce building, Sixth and Rober streets.

Tabulated data are from the following periods of observation: Humidity, fifteen years; sunshine, eight years; remainder of data is from full period of observation, thirty-one years—January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	20	27	56	11	-39	34	4	1.2	10	1.3	0.5	5.6	5.0	84	0.95	76	1.08	119	44	NW.
January.....	12	20	51	2	-41	26	-1	1.0	9	0.6	4.3	7.8	11.3	84	0.65	76	0.75	142	49	NW.
February.....	16	24	61	7	-33	32	8	0.6	8	0.3	2.6	6.1	10.9	85	0.66	76	0.90	175	55	NW.
Winter mean.....	16	24	.....	7	.....	.....	.....	2.8	27	2.2	7.4	19.5	.....	84	0.75	76	0.91	145	49	NW.
March.....	29	36	76	18	-22	45	17	1.6	7	1.0	1.1	9.0	10.3	81	1.05	68	1.32	178	49	NW.
April.....	48	56	87	36	7	53	36	2.5	10	1.1	0.5	2.5	14.0	75	20.6	54	2.28	236	58	NW.
May.....	60	68	94	48	24	66	50	3.3	13	2.9	4.3	0.3	2.4	74	31.2	51	3.24	244	55	NW.
Spring mean.....	46	53	.....	34	.....	.....	.....	7.4	30	5.0	5.9	11.8	.....	77	20.8	58	2.28	219	54	NW.
June.....	66	77	96	58	36	72	63	4.4	12	1.6	2.9	0.0	0.0	78	46.3	56	4.76	275	50	SE.
July.....	74	83	104	62	45	78	64	3.6	10	3.1	2.6	0.0	0.0	78	54.7	54	5.55	312	66	SE.
August.....	72	80	100	60	40	77	65	3.4	10	3.6	4.6	0.0	0.0	83	5.10	55	5.15	256	50	NW.
Summer mean.....	71	80	.....	60	.....	.....	.....	11.4	32	8.3	10.1	0.0	.....	80	5.07	55	5.15	281	61	SE.
September.....	62	71	96	51	28	68	53	3.3	10	0.5	10.0	0.0	0.0	82	3.84	58	3.81	235	61	SE.
October.....	50	57	87	39	12	58	40	2.5	9	0.1	4.4	0.1	0.6	80	2.45	62	2.62	176	52	SE.
November.....	32	38	74	22	-24	41	22	1.2	8	1.0	1.4	5.5	9.5	81	1.38	69	1.51	132	44	SE.
Fall mean.....	48	55	.....	37	.....	.....	.....	7.0	27	1.6	15.8	5.6	.....	81	2.56	63	26.5	181	52	SE.
Annual mean.....	45	53	104	35	-41	.....	.....	28.6	116	17.1	39.2	36.9	14.0	80	2.62	63	27.5	206	54	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	None.	July 11, 16, 17, 23, 26, 27; Aug. 8.	1899	Jan. 27, 29, 30; Feb. 5, 7-12.	Aug. 10.
1895	Jan. 20, 27, 30; Feb. 1-5, 7-9.	Sept. 10, 11, 17, 19.	1900	None.	June 25; July 30; Aug. 3, 4, 18, 19.
1896	None.	July 12; Aug. 4.	1901	Dec. 14, 15.	June 25, 26; July 19-21, 23, 24.
1897	Jan. 24-27; Feb. 28.	None.	1902	None.	None.
1898	None.	Aug. 22; Sept. 2.	1903	Feb. 16.	Do.

MINNESOTA.

Southwestern Section: ROCK COUNTY. Station: LUVERNE.

H. J. HINKLY, Observer.

[Established by the Weather Bureau March, 1894. Latitude, 43° 38' N. Longitude, 96° 11' W. Elevation, 1,480 feet.]

This station is near the center of the town of Luverne, which lies on a flat prairie half a mile west of the small stream called Rock River, and about 2 miles south of the precipitous termination of a stony ridge (having an elevation of from 1,650 to 1,700 feet above sea level), which extends northward into Pipestone County. The cliff-like termination of this ridge is nearly 200 feet above the level of Rock River. The station has always had a full set of standard instruments. The maximum and minimum thermometers are attached outside of a window on the north side of a large 2-story stone dwelling, and they are about 7 feet above the ground. The rain gage is about 30 feet south of the same dwelling, and about the same distance east of a frame barn, with a row of large trees about 35 feet south and east of the gage.

The gage stands in a level space, with its top about 4 feet above the ground. The mean temperatures were determined from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	19	29	55	10	-26	27	14	0.8	4	T.	0.4	4.0	8.0	N.
January.....	17	27	55	6	-26	22	7	0.6	5	0.2	0.2	5.1	4.5	N.
February.....	16	26	62	5	-35	27	6	0.4	2	0.4	0.4	3.9	5.0	N.
Winter mean.....	17	27		7				1.8	11	0.6	1.0	13.0		N.
March.....	29	39	77	19	-19	36	18	1.5	6	1.2	1.2	6.5	12.0	S.
April.....	48	59	85	35	10	54	43	2.4	7	1.8	4.9	0.5	2.5	S.
May.....	58	70	92	46	27	62	55	3.8	8	4.3	3.9	0.0	0.0	S.
Spring mean.....	45	56		33				7.7	21	7.3	10.0	7.0		S.
June.....	66	77	98	55	34	70	62	4.3	8	4.8	9.8	0.0	0.0	S.
July.....	71	83	103	59	38	79	66	4.1	6	1.8	1.9	0.0	0.0	S.
August.....	69	81	100	58	40	75	64	3.7	7	4.1	4.2	0.0	0.0	S.
Summer mean.....	69	80		57				12.1	21	10.7	15.9	0.0		S.
September.....	60	73	99	48	23	68	56	3.4	6	1.2	4.3	0.0	0.0	S.
October.....	49	61	88	36	10	56	44	2.4	5	2.6	3.5	0.8	2.1	S.
November.....	30	40	79	20	-13	42	16	0.8	5	0.7	1.7	3.9	5.0	N.
Fall mean.....	46	58		35				6.6	16	4.5	9.5	4.7		S.
Annual mean.....	44	55	103	33	-35			28.2	69	23.1	36.4	24.7	12.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894		June 30; July 11, 23, 26, 27; Aug. 8.	1899	Jan. 30; Feb. 4-12....	None.
1895	Jan. 24, 27, 28, 30; Feb. 1, 3-5, 7, 8.	Sept. 17.	1900	None.	Do.
1896	None.	July 13; Aug. 3, 7.	1901	Dec. 13, 14.	July 9, 12-15, 17, 19-25, 27; Aug. 1.
1897	Jan. 24-27; Feb. 26.	June 12.	1902	Jan. 27.	None.
1898	None.	Aug. 29.	1903	Feb. 16; Dec. 12, 13.	Do.

MINNESOTA.

Southern Section: MARTIN COUNTY. Station: ROLLING GREEN.

F. WHERLAND, Observer.

[Established by Signal Service March, 1887. Latitude, 43° 34' N. Longitude, 94° 34' W. Elevation, 1,240 feet.]

This station is 4 miles west and 2 miles south of the city of Fairmont, situated on the northeast shore of Pierce Lake which is 2 miles long and 1½ miles wide; this lake is one of the west chain of lakes. This region is the watershed lying between the waters which flow southward to the Des Moines River, some 20 miles west, and those which flow north to the Blue Earth River, about 25 miles east.

The country is an undulating prairie, the highest elevations being hillocks not exceeding 40 feet above the general level. The station outfit consists of standard maximum and minimum thermometers and rain gage. The standard shelter is fastened to the north side of the dwelling, and the thermometers are six feet above the sod. The rain gage is 90 feet east of the shelter, and about 70 feet from the nearest tree. The top of the gage is 3 feet above the ground.

The mean temperature is derived from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1887, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	20	27	53	11	-25	29	13	1.2	4	1.5	0.6	6.3	8.0	NW.
January.....	12	23	50	5	-33	21	-1	0.8	4	0.9	T.	6.3	6.5	NW.
February.....	14	24	62	5	-33	23	6	1.0	4	0.8	0.8	7.8	12.0	NW.
Winter mean.....	15	25		7				3.0	12	3.2	1.4	20.4		NW.
March.....	27	37	73	19	-15	36	16	1.6	5	0.6	1.4	9.4	12.0	NW.
April.....	46	56	84	36	10	50	39	3.0	7	1.6	2.1	1.2	4.0	NW.
May.....	57	66	90	48	24	63	49	4.0	9	1.1	10.2	0.1	1.0	NW.
Spring mean.....	43	53		34				8.6	21	3.3	13.7	10.7		NW.
June.....	66	76	92	56	35	70	61	3.8	8	3.8	2.9	0.0	0.0	S.
July.....	72	82	99	60	40	78	67	3.1	6	1.6	8.1	0.0	0.0	S.
August.....	69	80	96	59	40	75	66	2.6	6	0.6	2.9	0.0	0.0	NW.
Summer mean.....	69	79		58				9.5	20	6.0	13.9	0.0		S.
September.....	60	72	99	51	18	66	55	2.8	5	0.9	4.2	0.0	0.0	S.
October.....	48	60	88	39	8	57	42	1.4	5	T.	2.5	0.4	5.0	NW.
November.....	29	39	70	21	-20	40	20	1.0	4	2.4	T.	5.4	12.0	NW.
Fall mean.....	46	57		37				5.2	14	3.3	6.7	5.8		NW.
Annual mean.....	43	54	99	34	-33			26.3	67	15.8	35.7	36.9	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 24, 25.....	July 26, 27.	1899	Jan. 30; Feb. 4-12....	None.
1895	Jan. 27, 30; Feb. 1, 3, 5, 7, 8.	None.	1900	None.....	Do.
1896	None.....	July 14; Aug. 4, 6, 7.	1901	Dec. 14-16.....	July 12-14, 16, 20-25.
1897	Jan. 24-27; Feb. 26....	None.	1902	None.....	None.
1898	None.....	Do.	1903	Dec. 13.....	Do.

MINNESOTA.

Southern Section: MOWER COUNTY. Station: GRAND MEADOW.

CHARLES F. GREENING, Observer.

[Established by Signal Service July, 1887. Latitude, 43° 42' N. Longitude, 93° 22' W. Elevation, 1,338 feet.]

This station is situated near the northwestern limits of the village of Grand Meadow. The village of Grand Meadow is on a high, gently rolling, well-drained prairie, 1 mile north of Deer Creek, and 1½ miles south of Bear Creek.

The instrumental outfit consists of maximum and minimum thermometers, rain gage, and instrument shelter, all of which belong to the Weather Bureau. The shelter is securely fastened to posts, so that the thermometers are about 5 feet above the ground; it is 20 feet west of the Exchange Bank.

The rain gage is secured to the northwest corner of the instrument shelter, with its top 6½ feet above the ground.

The temperature means are derived from the maximum and minimum temperature readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	16	24	55	8	-30	24	10	1.1	5	0.8	0.7	8.1	6.0	NW.	
January.....	13	22	52	6	-30	19	4	0.5	5	0.8	0.5	7.5	6.0	NW.	
February.....	13	22	57	3	-32	20	4	0.9	4	1.0	1.2	8.8	7.0	NW.	
Winter mean.....	14	23		6				2.5	14	2.6	2.4	24.4		NW.	
March.....	28	37	84	18	-15	35	15	2.0	7	0.8	3.6	10.1	10.0	NW.	
April.....	46	59	89	34	6	51	44	2.7	7	1.6	4.9	2.5	6.0	SE.	
May.....	59	72	94	46	23	63	54	5.0	11	1.6	9.4	T.	T.	SE.	
Spring mean.....	44	63		33				9.7	25	4.0	17.9	12.6		SE.	
June.....	67	80	98	54	32	70	62	5.6	9	6.8	2.0	0.0	0.0	SE.	
July.....	72	86	107	59	37	79	70	4.3	7	8.0	5.0	0.0	0.0	SW.	
August.....	70	83	101	57	35	77	65	3.3	7	2.2	8.3	0.0	0.0	SW.	
Summer mean.....	70	83		57				13.2	23	17.0	15.3	0.0		SW.	
September.....	60	73	96	48	24	67	55	3.4	8	0.8	6.4	T.	T.	SW.	
October.....	48	60	90	36	11	56	40	2.8	7	0.8	2.8	T.	0.3	NW.	
November.....	31	35	74	20	-22	40	22	1.1	6	0.4	T.	6.7	7.0	NW.	
Fall mean.....	46	56		35				7.3	21	2.0	9.2	6.7		NW.	
Annual mean.....	44	54	107	32	-32			32.7	83	25.6	44.8	43.7	10.0	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 23, 24.....	June. 12, 13, 30; July 11, 15-19, 23, 26, 27, 30, 31; Aug. 7, 8, 23, 28; Sept. 2.	1899	Jan. 28-30; Feb. 3-12..	July 21, 22, 25; Aug. 10.
1895	Jan. 26, 27, 29, 31; Feb. 2-9.	July 5, 6; Aug. 16; Sept. 10, 11.	1900	Feb. 8.....	June 25, 26; Aug. 2.
1896	Jan. 4.....	July 13, 14; Aug. 4, 6-10.	1901	Dec. 13-18.....	June 14, 24-27, 30; July 13-17, 19-26; Aug. 18-21.
1897	Jan. 23-25; Feb. 25....	June 13-15; July 3, 8; Sept. 13.	1902	Jan. 26.....	None.
1898	Dec. 30, 31.....	July 23; Aug. 22.	1903	Feb. 16-18; Dec. 13, 26.	Do.

WISCONSIN.

By WILFORD M. WILSON,
Section Director.

WISCONSIN.

Wisconsin lies mainly between 87° 30' and 92° 30' west longitude and 42° 30' and 47° north latitude and is described by geologists as a swell of land between three notable depressions, viz: Lake Michigan on the east, Lake Superior on the north and the Mississippi River on the west. Its length from north to south is about 300 miles and its breadth from east to west about 250 miles. There are few abrupt elevations and none that may be dignified by the term mountain, the surface for the most part being gently undulating with a gradual ascent from Lake Michigan westward and from Lake Superior southward to the ridge which forms the watershed between the waters of the Mississippi and the basin of the Great Lakes.

Beginning at a point on the extreme northwest boundary near the headwaters of the St. Croix River and about 25 miles south of Lake Superior, with an elevation of about 1,150 feet above sea level, this ridge or watershed runs almost directly eastward until it touches the boundary line between Wisconsin and upper Michigan near State Line station, where the elevation is 1,718 feet. By making an abrupt curve to the southward it forms the dividing line between the headwaters of the Brule, Oconto, and Wolf rivers on the east and those of the Wisconsin on the west. For the remainder of its course it follows very closely the general trend of the Wisconsin River, turning to the west as it approaches the southern boundary of the State, and thus dividing the basins of the Fox and Rock rivers from that of the Wisconsin. The descent from the crest of the ridge westward toward the Wisconsin River, a distance of from 20 to 30 miles, is somewhat more rapid than toward Lake Michigan; but the slope is nowhere precipitous, the elevation of the watershed being generally about 200 feet above the bed of the river. Lake Michigan has an elevation of 580 feet above the level of the sea, and while nearly three-fourths of the surface of the State is drained by streams flowing into the Mississippi River, the bed of that river is something more than 50 feet above the level of the lake.

The ice from the first glacial epoch which invaded the entire State eroded the basin of Lake Winnebago and the valley of the Rock River, besides forming more than 2,000 depressions now occupied by minor lakes, which abound especially in the northern portions of the State. The southern limits of the second ice sheet are easily traced by a series of hillocks or drift hills, which extend southward from Kewaunee County to the Illinois line, and by the terminal moraines, which describe a series of irregular curves or loops extending northwestward from the southern border of the Winnebago basin to the northwest boundary of the State.

The soils of the State vary widely in their physical and chemical properties, but for the most part are fertile and easily tilled. Those of the drift-bearing regions are derived mainly from a mixture of the preglacial soils and the glacial grindings, and constitute for the most part the loamy clays and sandy loams of a high degree of fertility and permanence. In the southwest counties much of the soil is derived from the underlying limestone and is highly fertile and easily tilled. There are considerable areas in the central and northern counties underlaid mostly by Potsdam sandstone, where the soils are light, sandy and of relatively low fertility.

Most of the State was originally heavily timbered, but the early settlers found considerable areas of prairie lands in the western and southern counties. Heavy forests of Norway and white pine, interspersed in many localities with hard woods, covered the northern portions, while hard woods predominated in the eastern and southern sections.

Climate.—The climate of Wisconsin is influenced mainly by two important factors, viz: (1) Its location with respect to the average track of the storms which move eastward along the Canadian border and those which move up the Mississippi Valley from the southwestern States. The average path of neither class of storms passes directly over the State, but lie so close to the north and south as to usually bring Wisconsin within the influence of storms moving on either course. The principal effect of this condition is to give a more equable distribution of rainfall throughout the State than might otherwise obtain. (2) Its location with respect to the Great Lakes, which border on the north and east, giving a higher winter and lower summer temperature along the eastern and northern borders than at the same latitudes in the interior of the State.

The mean annual temperature for the State is 44°, and by months and seasons as follows: December, 20°; January, 16°; February, 15°; winter average, 17°. March, 29°; April, 45°; May, 56°; spring average, 43°. June, 65°; July, 70°; August, 68°; summer average, 68°. September, 60°; October, 48°; November, 32°; fall average, 47°. The average annual temperature for the northern section is 42°; for the central, 44°, and for the southern, 46°, the extreme range of the mean annual temperature being from 47° along the southern border to 40° in the extreme northeast counties. As a rule the mean annual temperature on the western side is about 2° higher than that at the same latitude on the eastern, due principally to the tempering influence of Lake Michigan. During the summer months the average temperature along the lake is about 5° below that of interior or western points, while for the winter months this condition is reversed and the east is about 4° warmer than the west.

When the mean monthly temperatures are charted it is clearly seen that the influence of the lake is thus raising the winter temperature and lowering that of summer is inappreciable at a distance of more than 20 to 25 miles from the lake shore. The modifying influence of the lake is most noticeable, however, when a comparison of the average annual number of days with freezing temperature is made for the various portions of the State. This number increases rapidly from about 130 along the lake shore to about 150 thirty miles inland, where the influence of the lake becomes inappreciable. From this point the number increases gradually toward the northwestern counties, where the maximum number of days with freezing temperature, about 185 annually, is reached.

The average absolute range of temperature is also greater over the interior and western counties than along the lake shore. The highest temperature recorded at Milwaukee in thirty-three years and at Manitowoc in fifty-three years was 100° , and the lowest at Milwaukee, -25° , and at Manitowoc, -32° , making the absolute range 125° and 132° , respectively, fairly represent the conditions that obtain along the eastern border of the State within the influence of the lake. The highest temperature recorded at LaCrosse, which is on the western border of the State at about the same latitude, in thirty-three years, was 104° , and the lowest, -43° , making the absolute range 147° , or 22° greater than at Milwaukee and 15° greater than at Manitowoc. The highest temperature ever recorded at any regular observing station in the State was 111° at Brodhead, Green County, on July 21, 1901, and the lowest, -48° , at Barron, on February 10, 1889.

Killing frosts.—The average date of the last killing frost in the spring and the first in the fall varies considerably for the different portions of the State, the average number of days between frosts being about 100 in the north-central counties and about 165 along the southern border. The average date of the last killing frost in the spring occurs between May 25 and June 3 in the north-central counties; between May 15 and May 25 along Lake Superior, the northwestern border and over the central portion of the State, and between April 20 to May 15 over most of the southern section. Killing frosts have occurred as late as June 30 in Sawyer, Barron, Gates, and Taylor counties, and as late as June 12 along the western border of the State as far south as the Illinois line, but killing frosts have not been known to occur along Lake Michigan after June 1. The average date of the first killing frost in the fall ranges from October 10 along the eastern border and over the southern tier of counties, except Grant County, to September 10 over the upper Chippewa and Wisconsin valleys. While killing frosts have been known to occur in some interior localities of the northern section in August or even as early as July 29, frost has not been recorded in the counties immediately bordering on Lake Michigan until after the middle of September and frequently do not occur until the latter part of October.

In the cranberry district, comprising Wood, Waushara, and portions of Juneau and Adams counties, the average date of the last killing frost in the spring falls on May 12, and the first in the fall on September 20. There appears to be a slight tendency for killing frost to occur both later in the spring and earlier in the fall in this section than in the districts immediately surrounding. This tendency is quite marked if the observation be taken on the cranberry marsh itself, where killing frost occurs on an average of about five days later in the spring and five days earlier in the fall than on contiguous farming lands. The explanation for this condition probably lies in the fact that the surface of the marsh is of necessity below that of the surrounding country, allowing the colder air to drain toward the marsh, while the liability to frost is further increased by the thick mass of dry vines which cover the surface and effectually prevent much of the heat from the sun reaching the soil.

Precipitation.—The average annual precipitation for the State is 31.5 inches, distributed throughout the year as follows: December, 1.4 inches; January, 1.3 inches; February, 1.2 inches; winter average, 3.9 inches. March, 2 inches; April, 2.7 inches; May, 3.6 inches; spring average, 8.3 inches. June, 3.8 inches; July, 4.1 inches; August, 3.3 inches; summer average, 11.2. September, 3.5 inches; October, 2.8 inches; November, 1.8 inches; fall average, 8.1 inches.

Considering only those stations which have a rainfall record of thirty years or more, the distribution of rainfall over the State appears to be remarkably even. There is, however, a slight tendency toward increased precipitation along the southern border of the State, the average annual amount at Beloit being about 1 inch greater than at Madison and Milwaukee and about 2 inches greater than at La Crosse and Manitowoc. There appears to be a rather remarkable deficiency of precipitation in the vicinity of the Winnebago basin as shown by the records at Hancock, Fond du Lac, and Stevens Point, the average annual precipitation at these stations being nearly 4 inches less than that of surrounding points. It does not seem probable that such a marked difference could occur in so limited an area, especially where no marked topographical features exist, and while the accuracy of the measurements made at these stations is not questioned, the period of observations, about ten years, is too short to determine with certainty whether this discrepancy is actual or only apparent.

As a rule the annual precipitation for the State rarely exceeds 40 inches or falls below 20 inches. These limits have, however, been passed in a few instances. In 1881, a year of exceptionally heavy rainfall, the annual precipitation at a number of points exceeded 50 inches, while during the drought period of 1895-96 the precipitation at most stations in the southern counties fell as low as 15 inches. The greatest annual precipitation recorded at any station in the State was 53 inches at Madison in 1881, and the least, 13 inches, also at Madison in 1895.

Snowfall.—The average annual snowfall for the State is 43.5 inches, by months, as follows: December, 7.2 inches; January, 9 inches; February, 9.1 inches; March, 8.3 inches; April, 2.6 inches; May, 0.4 inch; June, July, and August, none; September, trace; October, 0.9 inch; November, 6 inches. The annual snowfall in the northern section is 53 inches, in the central 36 inches, and in the southern 40 inches. A decrease of 17 inches between the annual snowfall in the northern counties and that of the central and an increase of 4 inches between the central and southern counties might appear remarkable. The explanation, however, lies in the fact that central Wisconsin is between and farther removed from the average track of those cyclonic storms which pass along the northern border of the State and those which move up the central valley from the southwest. A storm in central Illinois, with a cold area over the upper Mississippi Valley, will cause northeast winds with heavy snow in southern Wisconsin, while little or no snow occurs over the central counties. Likewise, a storm moving eastward over Lake Superior will cause heavy snow in the northern section of the State, with little or none in the central or southern. During the summer months this difference in precipitation is less noticeable and in the annual values practically disappears. It is possible, however, that the deficiency in the annual precipitation previously noted in some of the central counties may be the result of this condition.

Thunderstorms, tornadoes, and hail.—Thunderstorms of more or less intensity occur in all parts of the State during the summer months. The passage of an area of low pressure along the northern border will usually produce a series of local disturbances throughout the southern and central counties, and occasionally a true tornado. It has been asserted that violent thunderstorms, accompanied with intense electrical manifestations, are of more frequent occurrence in the northern counties than elsewhere in the State, and while the experience of competent observers tends to confirm the statement the records for that portion of the State are too fragmentary to determine the truth of the assertion.

Tornadoes occur more frequently in the western portion of the State than along the eastern border; but that the eastern counties are not free from the visitations of these storms is evidenced by the fact that one of the most destructive tornadoes known in the history of the State occurred at Racine, May 18, 1883, killing 25 persons, injuring 100, besides destroying property valued at \$200,000. Another very destructive tornado occurred at Pensaukee, which is located on the shore of Green Bay, in Oconto County, on July 7, 1877. In this tornado 8 persons lost their lives, and property to the value of \$3,000 was destroyed. About three tornadoes occur annually in the State, but only about 1 out of 15 passes through populous districts, causing loss of life or any considerable destruction of property.

Destructive hailstorms occur occasionally in all portions of the State; but from the data at hand, which is at best fragmentary and incomplete, it would seem that the northwestern counties are somewhat more subject to storms of this character than other portions of the State. The average annual number of hailstorms in the southern and central counties is about 2 which number increases to about 3 in the northern section.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (<i>see</i> Hancock)		Central		Manitowoc	Manitowoc	Central	547
Ashland (<i>see</i> Washburn)		Northern		Marathon (<i>see</i> Stevens Point)		do	
Barron	Barron	do	537	Marquette (<i>see</i> Oconto)		Northern	
Bayfield	Washburn	do	542	Marquette (<i>see</i> Hancock)		Central	
Brown	Green Bay	Central	544	Milwaukee	Milwaukee	Southern	553
Buffalo (<i>see</i> La Crosse)		do		Monroe (<i>see</i> La Crosse)		Central	
Burnett	Grantsburg	Northern	553	Oconto	Oconto	Northern	543
Calumet (<i>see</i> Fond du Lac)		Central		Oneida (<i>see</i> Koepenick)		do	
Clark	Neillsville	do	541	Outagamie (<i>see</i> Green Bay)		Central	
Chippewa (<i>see</i> Eau Claire)		do		Ozaukee (<i>see</i> Milwaukee)		Southern	
Columbia (<i>see</i> Madison)		Southern		Popin (<i>see</i> Eau Claire)		Central	
Crawford (<i>see</i> Viroqua)		do		Pierce (<i>see</i> St. Paul, Minn.)		do	
Dane	Madison	do	551	Poik	Osceola	Northern	536
Dodge (<i>see</i> Harvey)		do		Portage	Stevens Point	Central	542
Door (<i>see</i> Oconto)		Northern		Price (<i>see</i> Hayward)		Northern	
Douglas (<i>see</i> Duluth, Minn.)		do		Racine (<i>see</i> Milwaukee)		Southern	
Dunn (<i>see</i> Eau Claire)		Central		Richland (<i>see</i> Viroqua)		do	
Eau Claire	Eau Claire	do	510	Rock	Beloit	do	534
Florence	Florence	Northern	545	Sawyer	Hayward	Northern	534
Fond du Lac	Fond du Lac	Central	546	Sauk (<i>see</i> Madison)		Southern	
Forest (<i>see</i> Florence)		Northern		Shawano (<i>see</i> Green Bay)		Central	
Gates (<i>see</i> Barron)		do		Sheboygan (<i>see</i> Manitowoc)		do	
Grant	Lancaster	Southern	550	St. Croix (<i>see</i> St. Paul, Minn.)		do	
Green (<i>see</i> Beloit)		do		Taylor	Medford	Northern	538
Green Lake (<i>see</i> Hancock)		Central		Trempealeau (<i>see</i> La Crosse)		Central	
Iowa (<i>see</i> Lancaster)		Southern		Vernon	Viroqua	Southern	549
Iron (<i>see</i> Washburn)		Northern		Vilas (<i>see</i> Koepenick)		Northern	
Jackson (<i>see</i> La Crosse)		Central		Walworth (<i>see</i> Beloit)		Southern	
Jefferson	Harvey	Southern	552	Washington (<i>see</i> Harvey)		do	
Juneau (<i>see</i> Hancock)		Central		Washburn (<i>see</i> Grantsburg)		Northern	
Kenosha (<i>see</i> Milwaukee)		Southern		Waukesha (<i>see</i> Harvey)		Southern	
Kewaunee (<i>see</i> Manitowoc)		Central		Waupaca (<i>see</i> Stevens Point)		Central	
La Crosse	La Crosse	do	548	Waushara	Hancock	do	545
Lafayette (<i>see</i> Lancaster)		Southern		Winnebago (<i>see</i> Fond du Lac)		do	
Langlade	Koepenick	Northern	549	Wood (<i>see</i> Stevens Point)		do	
Lincoln (<i>see</i> Medford)		do					

STATE SUMMARY.

Station.	Num-ber.	Temperature.							Average num-ber days with—	
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Abso-lute maxi-mum.	Date.	Abso-lute mini-mum.	Date.	Maximum above 50°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Washburn.....	1	41	50	32	104	July, 1901.....	-33	February, 1899.....	5	161
Grantsburg.....	2	42	56	30	105	July, 1894.....	-45	February, 1895.....	11	171
Hayward.....	3	41	53	28	102	July, 1901.....	-49	do.....	7	185
Florence.....	4	40	51	29	98	June, 1901.....	-39	February, 1889.....	2	229
Osceola.....	5	41	54	28	105	July, 1901.....	-47	February, 1899.....	16	154
Barron.....	6	42	52	31	102	do.....	-48	do.....	7	167
Medford.....	7	42	55	29	103	June, 1900.....	-45	do.....	22	185
Koepenick.....	8	42	55	28	96	do.....	-35	do.....	3	174
Eau Claire.....	9	44	54	33	103	July, 1901.....	-40	February, 1899.....	9	163
Neillsville.....	10	43	53	32	106	do.....	-46	do.....	9	162
Stevens Point.....	11	44	55	32	101	do.....	-48	do.....	9	157
Oconto.....	12	44	55	33	99	July, 1901.....	-30	February, 1899.....	8	162
Green Bay.....	13	44	53	35	99	do.....	-36	January, 1888.....	7	141
Hancock.....	14	45	54	35	100	do.....	-35	February, 1899.....	9	140
Fond du Lac.....	15	45	55	35	100	do.....	-30	do.....	12	148
Manitowoc.....	16	43	52	34	100	July, 1894.....	-32	January, 1875.....	2	139
La Crosse.....	17	46	54	37	104	July, 1898.....	-43	January, 1873.....	10	141
Viroqua.....	18	45	55	35	103	July, 1901.....	-31	February, 1899.....	8	151
Lancaster.....	19	45	56	34	107	do.....	-29	do.....	15	151
Madison.....	20	46	54	38	104	do.....	-29	January, 1888.....	5	138
Harvey.....	21	46	56	36	107	do.....	-24	February, 1899.....	14	147
Milwaukee.....	22	45	53	38	100	do.....	-25	January, 1875.....	5	127
Beloit.....	23	47	57	38	105	do.....	-25	December, 1903.....	13	136

STATE SUMMARY—Continued.

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Washburn.....	1	Oct. 12	May 16	Sept. 25	June 5	<i>Inches.</i> 29.8	<i>Inches.</i> 6.7	<i>Inches.</i> 9.2	<i>Inches.</i> 9.9	<i>Inches.</i> 4.0
Grantsburg.....	2	Sept. 22	May 20	Sept. 9	June 7	31.1	8.8	11.1	8.2	3.0
Hayward.....	3	Sept. 9	June 3	Aug. 9	June 30	32.8	7.2	13.5	8.6	3.5
Florence.....	4	Sept. 10	June 1	Aug. 19	June 12	31.5	9.0	10.7	8.4	3.4
Oscoda.....	5	Sept. 8	May 26	Aug. 27	....do....	32.7	9.2	12.5	8.2	2.8
Barron.....	6	Aug. 31	May 31	Aug. 6	June 29	30.0	8.0	11.3	7.5	3.2
Mellford.....	7	Sept. 11	June 2	July 29	June 30	33.3	8.5	12.6	9.4	2.8
Koopemick.....	8	Sept. 15	May 9	Aug. 12	June 24	34.9	9.2	11.9	10.1	3.7
Emu Claire.....	9	Sept. 26	May 17	Sept. 11	June 12	33.7	9.8	11.0	9.6	3.8
Neillsville.....	10	Sept. 16	May 25	Aug. 29	....do....	34.2	9.4	12.5	8.6	3.7
Stevens Point.....	11	Sept. 22	May 24	Sept. 9	June 30	28.0	7.9	9.8	7.8	2.5
Oconto.....	12	Sept. 29	May 14	Sept. 14	June 5	29.3	8.4	9.0	7.8	4.1
Green Bay.....	13	Oct. 4	May 5	Sept. 16	May 30	31.0	8.1	9.7	7.9	5.3
Hancock.....	14	Sept. 24	May 16	Sept. 12	June 12	28.3	7.8	11.1	5.9	3.5
Fond du Lac.....	15	Sept. 29	May 11	....do....	May 27	26.2	6.5	10.2	6.5	3.0
Manitowoc.....	16	Oct. 11	May 12	Sept. 24	May 31	30.0	7.2	10.2	7.7	4.9
La Crosse.....	17	Oct. 8	May 2	Sept. 21	June 23	30.9	7.5	11.8	8.0	3.6
Viroqua.....	18	Sept. 26	May 6	Sept. 12	June 12	36.4	10.6	13.0	8.5	4.3
Lancaster.....	19	Sept. 29	May 8	....do....	....do....	29.7	8.7	10.5	7.0	3.5
Madison.....	20	Oct. 17	Apr. 21	Sept. 30	May 13	31.9	8.0	11.4	7.5	5.0
Harvey.....	21	Oct. 1	May 4	Sept. 3	June 6	31.9	8.9	10.9	7.9	4.2
Milwaukee.....	22	Oct. 10	Apr. 29	Sept. 25	May 29	31.0	8.5	9.5	7.2	5.8
Beloit.....	23	....do....	Apr. 23	Sept. 27	May 20	32.8	8.5	11.3	7.4	5.6

WISCONSIN.

Northern Section: BAYFIELD COUNTY. Station: WASHBURN.

GEORGE F. MORGAN, Observer.

[Established at Bayfield, October, 1891; moved to Washburn, 12 miles south, October, 1903. Latitude, 46° 37' N. Longitude, 90° 55' W. Elevation, 653 feet.]

Washburn, the county seat of Bayfield County, is located on the west shore of Chequamegon Bay, an arm of Lake Superior, and about 6 miles north of its southern extremity. The comparatively level space on which the city is built is inclosed on three sides by a semicircular bluff, which rises to a height of 250 feet above the level of the lake, and extends nearly to the shore of the bay north and south of the city.

The thermometers are exposed in a standard shelter located 21 feet north of a one-story building, 32 feet east of a two-story building, and about 1,000 feet from the bay.

The rain gage is located in an open space 9 feet north of the instrument shelter, the top of gage being 30 inches above ground. The records made at Bayfield and Washburn have been combined in the following tables, as it is believed that the conditions at these places are essentially identical.

The mean monthly, seasonal, and annual temperatures given in the accompanying table were obtained by dividing the sum of the maxima and minima by 2

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	21	28	55	13	-20	27	13	1.3	6	1.8	0.2	10.6	15.0	
January.....	15	22	50	7	-30	22	7	1.3	5	0.8	1.3	12.3	23.0	
February.....	13	22	51	5	-33	21	6	1.4	5	1.8	1.0	15.2	24.0	
Winter mean.....	16	24		8				4.0	16	4.4	2.5	38.1		
March.....	23	32	60	14	-20	31	13	1.6	4	0.3	5.1	13.2	16.0	
April.....	37	49	80	31	6	44	33	2.2	5	0.4	4.7	6.4	24.0	
May.....	50	61	89	40	21	56	44	2.9	8	2.5	6.4	0.9	5.0	
Spring mean.....	37	47		28				6.7	17	3.2	16.2	20.5		
June.....	61	72	95	50	25	66	53	3.2	8	1.9	2.9	T.	T.	
July.....	68	79	104	57	42	71	66	3.0	7	0.6	1.3	0.0	0.0	
August.....	68	78	94	58	37	74	64	3.0	6	2.2	1.8	0.0	0.0	
Summer mean.....	66	76		55				9.2	21	4.7	6.0	T.		
September.....	60	70	93	50	28	66	56	2.4	6	1.6	2.3	0.0	0.0	
October.....	48	56	78	39	17	54	44	5.9	6	3.4	5.0	0.3	2.0	
November.....	30	37	64	24	-13	42	27	1.6	5	1.4	1.2	9.8	12.0	
Fall mean.....	46	54		38				9.9	17	6.4	8.5	10.1		
Annual mean.....	41	50	104	32	-33			29.8	71	18.7	33.2	68.7	24.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1902.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 24.....	June 16, 22; July 11, 18, 19, 24, 28; Sept. 2.	1899	Jan. 27, 29-31; Feb. 6-7, 9-11; Mar. 7.	None.
1895	Jan. 28-30; Feb. 1, 4, 5.	June 8, 17; July 6, 7, 25; Aug. 23; Sept. 3.	1900	Feb. 10.....	June 5; July 30; Aug. 4, 5.
1896	None.....	June 30; July 1, 10-12, 14; Aug. 2, 3, 6-10, 15, 22, 27.	1901	None.....	June 26, 27; July 13-16, 18-20.
1897	Jan. 24-26; Mar. 1.....	July 1, 3, 17; Sept. 4, 9.	1902	January to August missing.	
1898	Dec. 31.....	June 17, 24; July 14, 17-19, 24, 27; Aug. 19; Sept. 2, 3.			

WISCONSIN.

Northern Section: BURNETT COUNTY. Station: GRANTSBURG.

TH. OLSEN, Observer.

[Established October, 1891. Latitude, 45° 47' N. Longitude, 92° 44' W. Elevation, 1,005 feet.]

The village of Grantsburg is located in the southwestern portion of Burnett County, on Wood River, a small tributary of the St. Croix, which is about 5 miles distant to the west. The general contour of the country immediately surrounding the station is slightly rolling, with a gentle slope toward the St. Croix and Wood rivers.

The thermometers, consisting of a self-registering maximum and minimum, are exposed in a standard Weather Bureau instrument shelter, located in an open lot about 200 feet from the depot at Grantsburg and about 150 feet from the Wood River. Prior to 1900 the thermometers were exposed on the north side of the store building belonging to Mr. Olsen, and 6 feet above ground. There was no shelter in use at this time, except a board 6 inches wide fastened to the wall about 4 inches above the instruments to protect them from the rain and snow. The rain gage is located in an open lot 30 feet from the nearest building and 5 feet above ground.

The monthly, seasonal, and annual mean temperatures were computed by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence in the spring of freezing temperature (32°) and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	16	28	58	5	-39	31	7	1.1	6	2.2	1.5	8.9	9.0	NW.
January.....	14	26	52	2	-42	24	6	0.9	5	1.4	0.8	9.2	7.0	NW.
February.....	12	25	52	-1	-45	17	4	1.0	4	2.4	1.9	9.0	10.5	NW.
Winter mean.....	14	26		2				3.0	15	6.0	4.2	27.1		NW.
March.....	26	39	73	14	-27	33	14	2.0	5	0.9	2.2	12.2	15.0	SW.
April.....	44	57	83	31	-7	50	36	2.9	6	3.4	4.2	4.2	12.0	SE.
May.....	56	70	93	42	17	60	48	3.9	8	0.4	6.6	0.1	1.0	NE.
Spring mean.....	42	55		29				8.8	19	4.7	13.0	16.5		E.
June.....	65	80	98	51	23	72	61	3.6	7	2.2	1.1	0.0	0.0	SW.
July.....	70	84	105	56	39	74	66	4.3	7	1.2	9.4	0.0	0.0	SW.
August.....	67	80	98	53	33	75	62	3.2	6	2.0	5.8	0.0	0.0	SW.
Summer mean...	67	81		53				11.1	20	5.4	16.3	0.0		SW.
September.....	59	72	96	45	16	64	52	3.6	5	1.4	10.0	0.0	0.0	SW.
October.....	50	63	84	37	7	63	44	3.0	4	2.6	3.1	0.1	0.4	NW.
November.....	31	43	75	20	-32	44	24	1.6	5	0.9	0.6	8.5	10.0	NW.
Fall mean.....	47	59		34				8.2	14	4.9	13.7	8.6		NW.
Annual mean...	42	56	105	30	-45			31.1	68	21.0	47.2	52.2	15.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 7, 8, 13, 23, 24, 27; Feb. 7, 17, 20, 24.	Aug. 3, 4, 6-8, 10, 12, 17-19, 21-23, 25-28, 31; Sept. 1-3, 5, 8, 27, 28.	1900	Jan. 31; Feb. 1, 9, 13, 24, 26; Dec. 31.	May 12, 13, 26; June 6, 23-26; July 30; Aug. 3, 4, 8, 10, 18, 19, 30.
1895	Jan. 1-9, 16.....	May 28; July 5, 6, 11, 13; Aug. 13; Sept. 9, 19.	1901	Jan. 2; Feb. 5, 6; Dec. 14-20.	June 25, 26; July 3, 13-17, 19-24; Aug. 17, 18, 20, 21; Sept. 4.
1896	Jan. 3, 4, 19, 20.....	May 8, 9; June 20-22, 30; July 1, 8-12, 22-24; Aug. 2, 3, 6-8, 10.	1902	Jan. 27, 28; Feb. 2, 3; Dec. 8.	May 18.
1897	Jan. 19, 24-27; Feb. 25, 26, 28; Mar. 12, 14, 16.	June 13-15; July 1, 2, 7-9, 19; Sept. 8.	1903	Jan. 11, 14, 21; Feb. 13-18, 20; Dec. 13, 25, 27.	Aug. 21.
1898	Jan. 1, 19; Nov. 24; Dec. 13, 29-31.	June 21, 23; July 14-17, 19, 27; Aug. 31; Sept. 1-3.			
1899	Jan. 7, 17, 27-31; Feb. 1, 2, 4-11; Mar. 17.	June 19; July 10, 18-20, 22, 23, 25; Aug. 11, 29.			

WISCONSIN.

Northern Section: SAWYER COUNTY. Station: HAYWARD.

W. E. SWAIN, Observer.

[Established March 1, 1893. Latitude, 46° 1' N. Longitude, 91° 30' W. Elevation, 1,191 feet.]

Hayward is located in the northwestern portion of Sawyer County, on the Namakagon River, which is the main upper tributary of the St. Croix. The surface of the surrounding country is mainly a level valley, rising gently east and west from the river. The station is located in the outskirts of the village, and the general conditions immediately surrounding the place of observation partake largely of the open country.

The thermometers are exposed in a standard shelter, which is attached to a post in the center of an open lot about 40 feet from a barn. The instruments are 6 feet above sod. The rain gage is exposed in an open lot 10 feet from the instrument shelter and 40 feet from the nearest building. The top of the gage is 30 inches above the ground.

The mean monthly, seasonal, and annual temperatures given in the following tables have been computed by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	14	25	51	4	-38	23	5	1.4	8	0.7	1.0	9.6	10.5	S.
January.....	12	23	49	0	-43	20	6	1.2	6	1.3	0.4	11.2	7.0	W.
February.....	11	24	54	-3	-49	19	5	0.9	5	0.3	1.2	8.1	8.0	W.
Winter mean.....	12	24	.....	0	.....	.....	.....	3.5	19	2.3	2.6	28.9	.....	S.
March.....	25	37	68	12	-26	35	15	1.8	7	1.9	0.9	12.9	8.0	S.
April.....	44	57	84	31	-2	49	38	2.0	6	1.7	1.5	4.0	10.0	S.
May.....	55	68	91	43	12	60	51	3.4	8	4.6	6.2	0.1	1.5	S.
Spring mean.....	41	54	.....	28	.....	.....	.....	7.2	21	8.2	8.6	17.0	.....	S.
June.....	64	78	99	51	25	72	58	4.5	10	1.1	1.8	0.0	0.0	S.
July.....	63	82	102	55	35	72	65	4.5	8	0.6	5.9	0.0	0.0	S.
August.....	66	79	95	53	31	75	61	4.5	8	0.7	5.1	0.0	0.0	NW.
Summer mean.....	66	80	.....	53	.....	.....	.....	13.5	26	2.4	12.8	0.0	.....	S.
September.....	57	69	95	44	31	61	53	3.4	7	1.7	6.4	0.0	0.0	S.
October.....	46	58	82	35	3	56	39	3.8	7	3.8	5.0	2.0	2.0	S.
November.....	27	36	70	17	-21	34	20	1.4	6	1.3	1.5	7.0	7.0	NW.
Fall mean.....	43	54	.....	32	.....	.....	.....	8.6	20	6.8	12.9	9.0	.....	S.
Annual mean.....	41	53	102	28	-49	.....	.....	32.8	86	19.7	36.9	54.9	10.5	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 7-9, 23-25, 27; Feb. 3, 4, 19-21, 23, 24.	June 8, 11-15, 20, 22, 30; July 9-11, 15-19, 23, 26, 27; Aug. 7, 19, 23; Sept. 1.	1899	Jan. 7, 27-31; Feb. 1, 2, 4-13; Mar. 1, 7; Nov. and Dec. missing.	July 18, 20, 23.
1895	Jan. 6, 8, 24, 27, 28, 30; Feb. 1-5, 7, 9, 10, 23; Dec. 30, 31.	July 5; Sept. 10.	1900	Jan. 26, 30, 31; Feb. 1, 9, 13-15, 19, 20, 23; Nov. 16; Dec. 31.	May 13; June 24-26; July 30; Aug. 4, 5, 8, 19, 20.
1896	Jan. 3-5, 14; Feb. 8, 16, 19-21; Mar. 13; Dec. 2, 24.	May 9; June 15; July 1, 11; Aug. 4, 6, 7.	1901	Jan. 1, 2, 30; Feb. 5, 6; Dec. 13-18, 20.	June 14, 15, 25-27; July 12-17, 19-24; Aug. 17, 18, 21.
1897	Jan. 6, 12, 18, 19, 23-27, 29; Feb. 25-28; Mar. 13, 15, 16; Dec. 18, 19.	June 13-15; July, Aug., and Sept. missing.	1902	Jan. 27, 28; Feb. 3, 11.	May 19.
1898	Feb. 1; Dec. 31.	June 23; July 7, 13-17, 24; Aug. 21, 31; Sept. 1, 2.	1903	Jan. 13, 14, 23; Feb. 14, 16-18, 20; Dec. 13, 15-17, 25, 26, 28.	None.

WISCONSIN.

Northern Section: FLORENCE COUNTY. Station: FLORENCE.

F. S. EVANS, Observer.

[Established November, 1891. Latitude, 45° 55' N. Longitude, 88° 18' W. Elevation, 1,264 feet.]

The city of Florence is located on Fisher Lake in the northeastern portion of the county and in the extreme northeastern portion of the State. The surrounding country is generally hilly and open, most of the timber which originally abounded in this section having been cut. The drainage is north toward the Brule River.

The maximum and minimum thermometers are exposed in a standard Weather Bureau instrument shelter, attached about 4 feet from the ground to the north side of the observer's residence, which is a two-story frame structure. The rain gage, which is a standard instrument, is located 25 feet from the house on the open lawn, the top being 30 inches above ground.

The mean monthly, seasonal, and annual temperatures given in the accompanying table were obtained by dividing the sum of the daily maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of a freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wd.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	18	25	51	10	-21	24	12	1.4	■	1.9	0.8	8.1	8.0	NW.
January.....	14	23	55	5	-32	20	4	1.0	■	2.2	T.	9.7	6.0	NW.
February.....	13	23	60	3	-39	18	7	1.0	4	0.6	1.8	9.5	7.0	NW.
Winter mean.....	15	24		6				3.4	12	4.7	2.6	27.3		NW.
March.....	24	35	62	1	-18	32	15	2.1	6	0.3	4.0	9.0	11.0	NW.
April.....	41	53	82	20	4	45	35	2.8	6	1.0	3.3	6.1	7.5	SW.
May.....	53	66	96	40	17	57	47	4.1	10	6.2	7.0	0.2	3.0	SW.
Spring mean.....	39	51		28				9.0	22	7.5	14.3	15.3		SW.
June.....	62	75	98	48	26	67	58	3.6	9	4.0	2.1	0.0	0.0	SW.
July.....	66	80	97	53	36	69	61	3.9	9	1.8	7.4	0.0	0.0	S.
August.....	■	76	98	51	29	70	61	3.2	7	2.2	5.1	0.0	0.0	NW.
Summer mean.....	64	77		51				10.7	25	8.0	14.6	0.0		SW.
September.....	56	67	91	44	19	67	52	3.4	8	5.8	7.1	0.0	0.0	SW.
October.....	45	55	80	35	■	54	35	2.9	7	0.3	3.0	0.8	3.0	NW.
November.....	29	37	■	21	-10	44	28	2.1	5	1.0	1.5	10.5	8.0	NW.
Fall mean.....	■	53		33				8.4	20	7.1	11.6	11.3		NW.
Annual mean.....	40	51	98	29	-39			31.5	79	27.3	43.1	■	11.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year	Minimum below -20°.	Maximum 90° or above.	Year	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 25; Feb. 20, 24...	June 11, 12; July 17-19, 27.	1900	Feb. 10, 27.....	June 26; Aug. 4-6, 19.
1895	Feb. 1-6.....	May 29; June 1.	1901	Dec. 15.....	June 26, 27; July 14 15 19, 20.
1896	Jan. 4, 5; Feb. 17, 21..	May 8; July 1; Aug. 4, 5.	1902	Jan. 28.....	June, July, Aug., and Sept. missing.
1897	Jan. 19, 24, 25; Feb. 27.	June 14; July 8-9, 30.	1903	Jan. 14; Feb. 17; Dec. 13.	Sept. 19.
1898	Jan. and Feb. missing; Dec. 31.	July 14, 17; Aug. 31; Sept. 2.			
1899	Jan. 1, 29-31; Feb. 2, 5-12.	July 23.			

WISCONSIN.

Northern Section: POLK COUNTY. Station: OSCEOLA.

C. W. STAPLES, Observer.

[Established May 1, 1891. Latitude, 45° 22' N. Longitude 92° 45' W. Elevation, 801 feet.]

Osceola is situated in the southwestern portion of Polk County on the St. Croix River. The surrounding country is comparatively level and elevated about 150 feet above the bed of the river, which at this point flows through a deep gorge with rocky, precipitous sides. There is a gentle rise eastward from the river for a distance of about 10 miles to the ridge which forms the watershed between the St. Croix and Apple rivers.

The maximum and minimum thermometers, of standard pattern, are exposed in a standard shelter, located on the lawn 50 feet southeast of the observer's residence. The shelter is attached to a post and is elevated 5 feet above the sod. Prior to 1900 the shelter in use was a small box, open in front and at the bottom, attached to a post about 5 feet above the ground, and so arranged as to prevent the sun from shining on the instruments. The rain gage is located about 15 feet from the instruments and 60 feet from the nearest building, with the top 30 inches above the ground.

The mean monthly, seasonal, and annual temperatures were obtained by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	15	21	51	-3	-40	24	8	1.1	5	0.2	0.8	6.8	12.0	S.
January.....	10	21	48	-1	-46	20	2	0.8	7	0.9	0.7	9.1	4.0	S.
February.....	10	23	52	-2	-47	18	4	0.9	5	0.2	0.4	8.4	12.0	S.
Winter mean.....	12	22		-2				2.8	17	1.3	1.9	24.3		S.
March.....	26	37	73	15	-27	34	14	2.1	6	0.6	2.1	11.7	12.0	N.
April.....	44	57	87	31	-4	39	37	2.6	6	2.0	2.9	2.8	8.0	N.
May.....	55	69	93	41	16	63	44	4.5	8	4.7	7.3	T.	T.	S.
Spring mean.....	42	54		29				9.2	20	7.3	12.3	14.5		N.
June.....	64	79	99	50	25	71	55	4.6	9	4.3	2.3	0.0	0.0	S.
July.....	70	85	105	55	34	74	67	4.4	8	5.4	9.6	0.0	0.0	S.
August.....	67	82	104	52	30	74	63	3.5	7	1.8	4.4	0.0	0.0	S.
Summer mean.....	67	82		52				12.5	24	11.5	16.3	0.0		S.
September.....	59	73	99	45	20	65	56	3.8	6	5.7	8.8	T.	T.	S.
October.....	47	60	83	34	3	50	40	3.1	7	0.2	4.1	0.1	0.7	N.
November.....	28	38	70	18	-34	37	20	1.3	5	1.1	0.2	5.5	10.0	N.
Fall mean.....	45	57		32				8.2	18	7.0	13.1	5.6		N.
Annual mean.....	41	54	105	28	-47			32.7	79	27.1	43.6	44.4	12.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 7-9, 24-27; Feb. 3, 4, 20, 21, 24.	June 7, 8, 11-15, 20-22, 26, 29, 30; July 8-11, 14-18, 21, 23, 25-27, 29-31; Aug. 6-8, 16, 17, 19, 22, 23, 26, 28; Sept. 1, 2.	1899	Jan. 1, 5, 7, 18, 27-31; Feb. 1-13; Mar. 1, 7.	July 11, 18-20, 22-25; Aug. 10, 27-29.
1895	Jan. 4, 8, 24, 27, 28, 30; Feb. 1-5, 7-10, 15.	May 9, 23, 29; July 5, 6, 13; Aug. 1, 4, 9, 13, 16, 22, 23, 25; Sept. 2, 3, 10, 11, 19, 20.	1900	Jan. 31; Feb. 1, 6, 9, 11, 14, 18, 25.	May 12, 13; June 6, 10, 20, 21, 23-27; July 30; Aug. 3-6, 8-10, 18, 19, 31; Sept. 5.
1896	Jan. 3-5.	May 8, 9; June 15, 17, 20, 22, 30; July 1, 2, 8-12, 14, 18, 19, 25, 28, 29; Aug. 1-3, 7, 9, 10, 14.	1901	Jan. 1, 2; Feb. 6; Dec. 14, 15, 17-20.	June 25, 26; July 3, 13-24; Aug. 13, 16-18, 20, 21; Sept. 3, 5.
1897	Jan. 19, 21, 23-27, 29; Feb. 25-28; Mar. 13, 14; Nov. 27; Dec. 1, 2, 4, 17, 19.	May 5, 7, 17, 18; June 13-15; July 3, 7, 8, 30; Sept. 4-6, 8.	1902	Jan. 27-29; Feb. 2, 3, 11; Dec. 8.	None.
1898	Nov. 24; Dec. 4, 9, 13, 14, 30, 31.	June 23; July 14-17, 19, 22, 24, 26, 27; Aug. 21, 22, 30, 31; Sept. 12, 28, 29.	1903	Jan. 11, 18, 21, 23; Feb. 13, 16-19, 24; Dec. 13, 16, 17, 26.	July 7; Aug. 21, 22.

WISCONSIN.

Northern Section: BARRON COUNTY. Station: BARRON.

E. W. PIERCE, Observer.

[Established October, 1892. Latitude, 45° 30' N. Longitude, 91° 50' W. Elevation, 1,115 feet.]

Barron is located near the center of Barron County on the Yellow River, a small tributary of the Vermilion. The surrounding country is slightly rolling, with a gentle slope eastward and southward toward the Vermilion River. The station is located near the northwestern limits of the village where the conditions immediately surrounding partake largely of the open country.

The thermometers are exposed in a standard instrument shelter on the lawn 30 feet from the residence of the observer. The rain gage is a standard instrument, located on an open portion of the lawn 30 feet from the house and 12 feet from several small trees, which, however, do not interfere with the exposure. The top of the gage is 38 inches above ground.

The mean monthly, seasonal, and annual temperatures given in the accompanying table were obtained by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.	16	25	59	7	-40	29	8	1.1	5	1.4	0.5	5.8	5.0	NW.
January.	16	20	48	0	-42	17	2	1.1	6	1.5	0.6	10.7	8.0	NW.
February.	11	23	50	0	-48	19	5	1.0	5	0.3	0.4	11.8	12.0	NW.
Winter mean.	12	23		2				3.2	16	3.2	1.5	28.3		NW.
March.	26	36	65	16	-26	35	13	2.0	7	0.9	2.5	14.1	16.0	NW.
April.	43	55	84	32	-2	47	36	2.2	6	2.1	2.4	4.8	13.0	NW.
May.	54	67	90	42	18	57	48	3.8	7	3.6	5.8	1.0	10.0	SE.
Spring mean.	41	53		30				8.0	20	6.6	13.7	19.9		NW.
June.	64	77	96	50	22	68	60	3.2	7	4.4	3.0	0.0	0.0	SW.
July.	60	83	102	56	34	74	65	4.8	6	3.6	6.6	0.0	0.0	SW.
August.	65	80	97	51	28	72	61	3.3	11	1.1	4.8	0.0	0.0	NW.
Summer mean.	65	80		52				11.3	19	9.1	14.4	0.0		SW.
September.	58	71	92	45	14	62	55	3.2	6	2.4	6.0	0.0	0.0	SE.
October.	46	57	79	35	3	50	38	2.9	7	0.7	3.2	0.1	0.5	SE.
November.	36	35	70	38	-35	34	23	1.4	5	4.3	0.5	5.7	0.6	NW.
Fall mean.	47	54		39				7.5	18	7.4	9.7	5.8		SE.
Annual mean.	42	52	102	31	-48			30.0	73	26.3	36.3	54.0	16.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 7, 8, 25, 27; Feb. 4, 9, 20, 24.	June 12-14, 20, 26; July 9, 11, 15-18, 22, 23, 26, 27, 30; Aug. 22; Sept. 1, 2.	1899	Jan. 7, 18, 27-31; Feb. 3, 5-13; Mar. 1, 2, 7.	July 5, 10, 17, 27, 28.
1895	Jan. 24, 27, 30; Feb. 1-5, 7, 9, 10; Dec. 30.	May 29; June 5, 6; July missing; Aug. 20.	1900	Jan. 30, 31.	May 14; June 19-21, 23-26; July 2-4, 21-23; Aug. 3, 4, 7, 8, 10, 14, 18, 19, 21.
1896	Jan. 3-5; no record for other months.	No record.	1901	Jan. 1, 2; Feb. 6; Dec. 13-16, 18, 20.	June 26, 27; July 3, 13-17, 19-24, 27; Aug. 18; Sept. 5, 6.
1897	Jan. 18, 25-27; Feb. 25, 26; Mar. 13, 16.	June 13-15; July 3, 7, 8, 24.	1902	Jan. 27-29; Feb. 3, 4; Dec. 8.	None.
1898	January missing; Feb. 1; Nov. 24; Dec. 30, 31.	July 6; Aug. 19, 21, 22, 31; Sept. 2.	1903	Jan. 2, 3; Feb. 14, 16-18; Dec. 13, 26, 28.	June 6, 7, 26-29; July 6-8, 28.

WISCONSIN.

Northern Section: TAYLOR COUNTY. Station: MEDFORD.

WM. ZEIT, Observer.

[Established October, 1892. Latitude, 45° 8' N. Longitude, 90° 20' W. Elevation, 1,420 feet.]

The city of Medford is located near the center of Taylor County on the Black River. The surface rises quite abruptly from the river to the north for a distance of about a mile, where the elevation is perhaps 80 feet above the bed of the stream. The station is located about midway between the river and the crest of the hill on the southern slope overlooking the city and the valley below.

The thermometers, consisting of a self-registering maximum and minimum, are exposed in a standard instrument shelter, located 5 feet above sod ground on the lawn 25 feet northwest from the observer's residence. The rain gage is of standard pattern and is located on an open portion of the lawn 25 feet from the residence.

The mean monthly, seasonal, and annual temperatures given in accompanying table were obtained by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of a freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	16	26	53	7	-28	24	11	1.0	3	2.6	0.5	5.7	16.0	W.
January.....	12	24	52	3	-38	18	4	0.8	4	0.8	0.2	6.5	6.0	W.
February.....	12	25	60	0	-45	22	5	1.0	3	2.2	0.2	8.2	13.0	W.
Winter mean.....	13	25		3				2.8	10	5.6	0.9	20.4		W.
March.....	26	38	66	13	-22	35	15	1.6	5	1.6	2.4	7.3	10.5	W.
April.....	43	56	85	30	0	46	36	2.4	5	3.4	4.0	2.5	8.0	S.
May.....	55	70	95	40	16	61	49	4.5	8	3.5	8.2	0.2	1.0	W.
Spring mean.....	41	55		28				8.5	18	8.5	14.6	10.0		W.
June.....	65	82	103	49	15	68	52	4.6	7	2.0	0.9	0.0	0.0	W.
July.....	70	86	102	54	34	73	66	4.6	8	2.8	7.4	0.0	0.0	W.
August.....	67	84	100	51	31	75	63	3.4	7	1.6	7.3	0.0	0.0	W.
Summer mean.....	67	84		51				12.6	22	6.4	15.6	0.0		W.
September.....	58	73	99	44	11	62	53	4.0	6	2.1	9.5	T.	T.	W.
October.....	46	59	87	34	6	55	39	3.8	6	3.0	4.7	0.2	1.0	W.
November.....	27	36	71	19	-18	37	23	1.6	4	0.9	0.9	5.5	9.5	W.
Fall mean.....	44	56		32				9.4	16	6.0	15.1	5.7		W.
Annual mean.....	42	55	103	29	-45			33.3	66	26.5	46.2	36.1	16.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 1, 7, 8, 25, 27; Feb. 4, 20, 21, 24.	June 11-15, 20, 27, 30; July 9-12, 15-19, 23, 27, 30, 31; Aug. 7, 8, 23, 24; Sept. 1, 2.	1899	Jan. 7, 27-31; Feb. 1, 2, 4-13; Mar. 1, 7.	June 10, 25-27, 30; July 4, 6, 9, 11, 12, 18, 20-25, 27, 28, 31; Aug. 2, 3, 10, 11, 14, 15, 18, 19, 22, 25-29.
1895	Jan. 27, 28, 30; Feb. 1-5, 7, 9, 10.	May 9, 29; June 1, 8, 9, 15, 20, 25; July 2, 3, 5-7, 13, 16, 20; Aug. 4, 9, 13, 15, 16, 21, 23; Sept. 3, 5, 11, 19, 20.	1900	Jan. 30, 31, Feb. 1, 9, 14-17, 24, 26, 27; Mar. 16.	May 31; June 4-7, 19, 24-27; July 3-5, 10, 14, 22, 23; Aug. 1, 3-9, 11, 14-23, 29-31; Sept. 1.
1896	Jan. 3-5; Feb. 19-21.	May 6-8, 11; June 6, 10, 15-18, 20, 21, 23, 24, 30; July 1-3, 10-12, 14, 21-23; Aug. 2, 4-7, 9, 10, 13, 14.	1901	Jan. 1, 2; Dec. 14, 15.	May 17, 18; June 3, 12-14, 25-27; July 2, 3, 12-25, 27, 29; Aug. 6, 12, 13, 16-21; Sept. 3, 6.
1897	Jan. 24-27; Feb. 26, 27; Mar. 13; Dec. 2, 17, 18.	June 13, 14, 15, 30; July 2, 3, 6-9, 15-18, 20, 24, 30; Aug. 2, 4, 5, 6, 8, 13, 28; Sept. 3-5, 8, 9.	1902	Jan. 28.	May 23; June 13; July 7, 8, 12, 13, 20, 23-25, 28, 30; Aug. 1, 2, 4, 27, 28.
1898	Feb. 1; Dec. 31.	June 3-5, 12, 13, 16, 17, 22, 23, 29; July 1, 2, 6, 7, 11-17, 19, 22-24, 26, 27; Aug. 21, 30, 31; Sept. 1, 2, 29.	1903	Feb. 16-19; Dec. 13, 25.	June 5, 6, 15; July 2, 3; Aug. 22.

WISCONSIN.

Northern Section: LANGLADE COUNTY. Station: KOEPENICK.

E. S. KOEPENICK, Observer.

[Established October, 1891. Latitude, 45° 23' N. Longitude, 89° 11' W. Elevation, 1,676 feet.]

Koepenick is located near the center of the northern portion of Langlade County, on the ridge which forms the watershed between the Wolf River on the east and the Wisconsin on the west. The surface of the land is generally level and covered for the most part by a second growth of timber.

The thermometers, maximum and minimum, are exposed in a standard shelter. It is located in an open field, 6 feet above sod ground, and about 40 feet to the west of the store, a two-story frame building belonging to the observer. The rain gage is located in an open field, 50 feet from the nearest building.

The monthly, seasonal, and annual mean temperatures given in the accompanying table have been computed by dividing the sum of the daily readings of the exposed thermometer at 7 a. m., 2 p. m., and twice the value at 9 p. m. by 4 for a period of nine years and the sum of the maxima and minima by 2 for three years. The dates of killing frosts have been taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 17	° F. 26	° F. 54	° F. 5	° F. -30	° F. 22	° F. 11	In. 1.2	7	In. 0.6	In. 1.0	In. 7.8	In. 5.0	NW.
January.....	13	27	58	1	-35	18	6	1.3	7	1.0	1.1	10.5	6.0	NW.
February.....	14	28	60	1	-34	20	7	1.2	6	0.5	1.3	10.1	6.0	NW.
Winter mean.....	15	27		2				3.7	20	2.1	3.4	28.4	0.0	NW.
March.....	26	38	68	22	-20	35	18	1.9	8	1.8	1.6	11.2	8.0	NW.
April.....	44	57	84	26	6	49	39	3.2	9	3.5	4.3	7.4	10.0	SW.
May.....	56	72	96	39	10	61	53	4.1	10	3.8	1.5	1.5	6.0	SW.
Spring mean.....	42	56		29				9.2	27	9.1	7.4	20.1	0.0	SW.
June.....	65	77	96	44	26	72	58	4.1	9	3.1	3.7	0.0	0.0	SW.
July.....	68	82	96	54	33	72	65	4.4	10	1.2	7.8	0.0	0.0	SW.
August.....	64	77	94	48	31	70	60	3.4	8	0.6	5.5	0.0	0.0	NW.
Summer mean.....	66	79		49				11.9	27	4.9	17.0	0.0		SW.
September.....	59	69	90	42	20	64	55	4.2	9	2.5	8.1	0.2	0.2	SW.
October.....	46	61	84	32	6	53	38	3.8	9	3.2	9.1	1.5	5.0	SW.
November.....	31	41	80	21	-12	38	26	2.1	9	2.0	1.6	10.3	6.0	NW.
Fall mean.....	45	57		32				10.1	27	7.7	18.8	12.0		SW.
Annual mean.....	42	55	96	28	-35			34.9	101	23.8	46.6	60.5	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 25; Feb. 4, 20, 24.	June 14; July 17-19, 23, 26, 27, 29, 31; Aug. 8, 19.	1900	None.	June 25.
1895	Jan. 28, 30; Feb. 1-5, 7; Mar. 14.	May 29.	1901	January, February, and March missing.	June 26, 27; July 13-16, 20, 21; Aug. 18.
1896	Jan. 3-5; Feb. 19-21.	Aug. 4.	1902	Jan. 27, 28.	May 19; June 13; July 4, 6, 12, 23, 28; Aug. 9.
1897	Jan. 24-26.	June 14, 15; July 2, 8.	1903	Jan. 10, 13, 14; Feb. 17-20; Dec. 13, 15, 25, 26.	None.
1898	None.	July 15; Aug. 31; Sept. 2.			
1899	Jan. 7, 27, 29-31; Feb. 5-12.	July 11, 12, 23, 24.			

WISCONSIN.

Central Section: EAU CLAIRE COUNTY. Station: EAU CLAIRE.

R. C. PRESTON, Observer.

[Established February, 1891. Latitude, 44° 45' N. Longitude, 91° 30' W. Elevation, 800 feet.]

Eau Claire is located in the northwestern portion of Eau Claire County, at the confluence of the Chippewa and Eau Claire rivers. The main portion of the city is about 31 feet above low-water mark of the Chippewa River and about 220 feet above the level of Lake Michigan. The surrounding country is mainly level, with a gentle increase in elevation east and west from the Chippewa River. The station is located in the western outskirts of the city, about 500 yards west from the junction of the Chippewa and Eau Claire rivers.

The thermometers, maximum and minimum, are exposed in a standard instrument shelter furnished by the Weather Bureau, located on the lawn, about 40 feet to the west of the residence of the observer and 5 feet above sod ground. There are a number of small trees within 10 or 15 feet of the shelter, none of which interfere with the exposure.

The rain gage is located on an open space in the lawn, 50 feet from the observer's residence, which is a two-story frame building. The mean monthly, seasonal, and annual temperatures are obtained by dividing the sum of the maxima and minima by 2. The dates of killing frosts have been taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	18	26	54	10	-28	27	11	1.5	5	0.3	0.8	4.4	10.0
January.....	13	22	54	4	-34	21	4	1.0	5	0.3	0.3	3.5	11.0
February.....	14	24	59	4	-40	20	6	1.3	5	2.3	0.8	5.6	18.0
Winter mean.....	15	24		6				3.8	15	2.9	1.9	13.5	
March.....	28	38	75	18	-18	38	18	2.1	7	2.8	2.1	4.1	8.0
April.....	46	58	88	34	10	51	40	3.0	7	2.2	3.7	1.7	9.0
May.....	57	70	94	45	24	62	53	4.2	5	2.0	7.0	T.	T.
Spring mean.....	44	55		32				9.3	22	7.0	12.8	5.8	
June.....	66	76	97	56	25	71	62	3.6	9	1.5	2.4	0.0	0.0
July.....	71	83	103	59	41	77	69	4.3	7	1.3	8.8	0.0	0.0
August.....	69	82	98	57	36	76	64	3.1	6	0.2	5.1	0.0	0.0
Summer mean.....	69	80		57				11.0	22	3.0	16.3	0.0	
September.....	60	71	99	49	22	64	57	4.1	8	0.3	9.1	T.	T.
October.....	49	60	86	38	10	57	41	3.8	7	5.1	2.0	T.	T.
November.....	31	39	70	22	-15	39	26	1.7	7	1.8	0.6	3.1	8.0
Fall mean.....	47	57		36				9.6	22	7.7	11.7	3.1	
Annual mean.....	44	54	103	33	-40			33.7	81	20.6	42.7	22.4	18.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 8, 25; Feb. 4.....	June to Sept., missing.	1900	Feb. 9.....	May 12, 13; June 23-27; July 4, 30; Aug. 4-10, 18-21; Sept. 5.
1895	Jan. 28, 30; Feb. 1-6, 9, 10, 12.	May 10, 28-30; July 5-7, 14; Aug. 10, 14, 17; Sept. 4, 11, 12, 20.	1901	Dec. 13, 14, 17, 19.....	May 1; June 25-27, 30; July 3, 8, 12-16, 18-23; Aug. 18-21; Sept. 5, 6.
1896	Jan. 3-5.....	June 16; July 1-4, 13, 15, 30; Aug. 5-11.	1902	Jan. 28.....	None.
1897	Jan. 19, 24-26.....	June 14-16; July 3, 4, 6-9, 19, 20, 25, 30, 31.	1903	Feb. 16, 17; Dec. 13, 26.	Do.
1898	Dec. 31.....	June 3, 23, 24; July 2, 13-16, 18, 20-24; 26, 28; Aug. 18, 20-23; 30, 31; Sept. 1-3.			
1899	Jan. 27, 29-31; Feb. 6-14.	July 19, 20, 22, 23; Aug. 10, 17, 27, 28.			

WISCONSIN.

Central Section: CLARK COUNTY. Station: NEILLSVILLE.

WM. HEASLETT, Observer.

[Established October, 1892. Latitude, 44° 30' N. Longitude, 90° 26' W. Elevation, 1,040 feet.]

Neillsville is located near the center of the southern portion of Clark County at the confluence of Black River and O'Neil Creek. The surface rises quite abruptly from the river for a distance of half a mile where the elevation is perhaps 60 feet above the bed of the stream. The station is situated about midway between the river and the crest of the hill.

The thermometers, maximum and minimum, are exposed in a standard Weather Bureau instrument shelter located 30 feet from the observer's residence. The bottom of the shelter is 4 feet above sod. The rain gage is a standard instrument and is located on an open portion of the lawn 50 feet from the residence, the nearest building.

The mean monthly, seasonal, and annual temperatures given in the following table were computed from the daily observations by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	18	24	51	11	-28	27	10	1.5	4	1.3	0.9	8.2	12.0	NW.
January.....	13	21	54	5	-40	19	4	1.0	3	1.9	1.0	6.4	8.0	NW.
February.....	12	22	54	2	-46	24	5	1.2	3	0.5	1.5	7.0	8.0	NW.
Winter mean.....	14	22		6				3.7	10	3.7	3.4	21.6		NW.
March.....	28	37	71	19	-20	37	18	2.4	6	1.6	2.0	10.4	8.0	NW.
April.....	46	58	88	34	8	48	39	2.9	5	3.7	3.2	2.4	5.0	NW.
May.....	57	70	94	44	22	63	51	4.1	7	6.7	2.0	0.5	3.0	NW.
Spring mean.....	44	55		32				9.4	18	12.0	7.2	13.3		NW.
June.....	66	79	94	53	26	68	63	4.0	7	4.4	2.4	0.0	0.0	NW.
July.....	70	83	106	57	34	76	66	5.0	6	0.4	9.0	0.0	0.0	NW.
August.....	67	80	96	54	34	74	63	3.5	6	0.2	4.2	0.0	0.0	NW.
Summer mean.....	68	81		55				12.5	19	5.0	15.6	0.0		NW.
September.....	59	71	95	47	14	64	54	3.7	5	2.6	8.0	0.0	0.0	NW.
October.....	48	58	82	37	8	55	40	3.0	5	3.0	7.7	T.	2.0	NW.
November.....	30	38	72	23	-14	39	26	1.9	4	1.9	1.3	5.8	8.0	NW.
Fall mean.....	46	56		36				8.6	14	7.5	17.0	5.8		NW.
Annual mean.....	43	53	106	32	-46			34.2	61	28.2	43.2	40.7	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	Jan. 7, 8, 25; Feb. 4, 24.	June 12-14, 20, 22, 30; July 11, 12, 15, 17-19, 23, 26, 27, 31; Aug. 7, 8, 13, 17, 23, 24; Sept. 1, 2.	1899	Jan. 1, 2, 8, 29-31; Feb. 1, 5-13.	July 20, 23; Aug. 10, 19, 27, 28.
1895	Jan. 27, 28, 30; Feb. 1-5, 10.	May 9, 23, 29; June 9; July 5-7, 13; Aug. 9, 16; Sept. 3, 5, 10, 11, 19.	1900	Feb. 9, 26, 27.....	June 24-26; July 4; Aug. 4-10, 18, 19; Sept. 5.
1896	Jan. 3-5; Feb. 21.....	July 1-3, 12, 14, 29; Aug. 4, 5, 7, 9.	1901	Dec. 14, 15, 20.....	June 13-15, 24-28, 30; July 1-3, 9, 13-25; Aug. 20.
1897	Jan. 24-26; Feb. 27; Mar. 13; Dec. 2.	June 15; July 2, 3, 8, 9; Sept. 8, 9.	1902	Jan. 28, 29.....	May 21; June 13; July 4, 7, 12, 15, 16, 25, 26, 28-30; Aug. 2, 3.
1898	Feb. 1; Dec. 31.....	June 24; July 7, 15-18, 23, 24; Aug. 22, 31; Sept. 1, 2.	1903	Jan. 23; Feb. 16-18, 20; Dec. 13, 14, 26.	June 27-29; July 6-8, 23, 24, 28.

WISCONSIN.

Central Section: PORTAGE COUNTY. Station: STEVENS POINT.

G. E. CULVER, Observer.

[Established October, 1892. * Latitude, 44° 36' N. Longitude, 89° 40' W. Elevation, 1,115 feet.]

The station is near the northwestern limits of the city of Stevens Point, on a level plain 1 mile east of the Wisconsin River. The plain extends for several miles in every direction, the nearest hills being 4 miles away to the eastward. The instrument shelter stands on the campus of the State Normal School, about 100 feet east of the main building. The shelter is of standard pattern, mounted on posts so that the instruments are about 7 feet above the surface of the lawn on which the shelter stands. The rain gage stands on the ground about 40 feet from the observer's house, which fronts the normal school campus.

The mean monthly, seasonal, and annual temperatures were obtained by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December	18	27	51	10	-28	27	11	1.0	6	0.8	0.7	7.2	5.0	NW.
January	16	26	52	6	-37	21	10	0.7	5	1.1	0.7	7.0	9.0	NW.
February	14	25	53	3	-48	21	6	0.8	4	0.4	0.2	5.9	6.0	W.
Winter mean	16	26		6				2.5	15	2.3	1.6	20.1		NW.
March	28	38	72	19	-17	37	18	1.3	6	0.5	0.4	6.1	6.0	NW.
April	46	58	87	34	1	51	42	2.5	7	0.9	3.7	5.0	8.0	SE.
May	58	70	95	45	19	64	53	4.1	10	4.6	7.7	1.1	5.0	E.
Spring mean	44	55		33				7.9	23	6.0	11.8	12.2		NW.
June	66	79	100	53	26	70	61	3.8	7	3.8	5.2	0.0	0.0	SW.
July	70	84	101	57	40	75	68	3.4	7	2.1	2.9	0.0	0.0	SW.
August	68	80	97	55	35	73	63	2.6	6	3.6	3.5	0.0	0.0	NW.
Summer mean	68	81		55				9.8	20	9.5	11.6	0.0		SW.
September	60	72	97	48	22	65	56	3.6	7	2.9	4.9	0.0	0.0	NW.
October	48	60	94	37	10	56	42	2.7	6	0.8	2.4	1.1	2.5	NW.
November	32	40	70	22	-17	39	27	1.5	6	1.3	2.8	8.0	8.0	NW.
Fall mean	47	57		36				7.8	19	5.0	10.1	9.1		NW.
Annual mean	44	55	101	32	-48			28.0	77	22.8	35.1	41.4	9.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 1, 7-9, 23, 25, 27, 31; Feb. 4, 20, 21, 24; Dec. 28.	June 13, 14, 20, 30; July 1, 11, 12, 15-20, 24, 26-28, 30; Aug. 7-9, 23, 24; Sept. 1, 2.	1899	Jan. 1, 2, 7, 8, 26-31; Feb. 1-13, 24; Mar. 1, 6, 7, 24, 30; Dec. 30.	July 23; Aug. 18, 19, 27, 28.
1895	Jan. 1, 14, 24, 27, 28, 30; Feb. 1-11, 15, 23; Mar. 14.	May 9, 28, 29; June 1, 9; July 5-7; Aug. 9, 16; Sept. 3, 5, 10-12, 19, 20.	1900	Jan. 29-31; Feb. 1, 9, 14, 16, 24-27.	June 25-27; July 4; Aug. 4-8, 18, 19; Sept. 5.
1896	Jan. 3-5; Feb. 17, 19-21; Mar. 13.	May 7; July 1, 3, 12, 14, 28, Aug. 4-10.	1901	Jan. 1-3, 19, 30; Feb. 2, 5, 6, 22, 25, 28; Mar. 5; Dec. 14-18, 20.	May 17; June 24-28; July 1, 2, 9, 13-17, 19-24; Aug. 13, 18, 19, 21; Sept. 5, 6.
1897	Jan. 24-27; Feb. 25-27; Mar. 13, 16; Nov. 23, 30; Dec. 2, 17-19, 21, 23, 24, 27.	June 13-15, 29, 30; July 1-3, 5-9, 15, 18, 19, 30; Sept. 8, 9; Oct. 3, 4.	1902	Jan. 4, 27-30; Feb. 1, 3-6, 11, 15; Dec. 4, 8.	July 4, 13, 17, 30.
1898	Feb. 1-3; Dec. 2, 5, 30, 31.	June 4; July 15-19, 23, 24, 27; Aug. 31; Sept. 1, 2.	1903	Jan. 5, 10, 12, 13, 21, 23, 30; Feb. 6, 16-20; Dec. 2, 13, 14, 17, 25, 26, 28.	July 8.

WISCONSIN.

Northern Section: OCONTO COUNTY. Station: OCONTO.

W. K. SMITH, Observer.

[Established December, 1890. Latitude, 44° 53' N. Longitude, 87° 53' W. Elevation, 590 feet.]

The city of Oconto is situated on the west shore of Green Bay, in the southeastern portion of the county and at the mouth of the Oconto River. The country in the vicinity of this station is mainly rolling, with a gradual rise toward the west, the elevation of the land on which the station is located being about 10 feet above the level of Green Bay.

The thermometers, maximum and minimum, are exposed in a standard shelter elevated 4½ feet above sod. The shelter is located on the lawn 45 feet north of the observer's residence. The rain gage, a standard Weather Bureau instrument, is located on the open lawn, about 15 feet southwest of the instrument shelter, with the top 30 inches above ground.

The mean monthly, seasonal, and annual temperatures have been obtained by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	30	52	13	-18	29	11	1.4	6	2.4	1.0	9.2	5.0	W.
January.....	18	28	49	9	-27	24	13	1.5	6	1.0	1.0	11.5	8.0	W.
February.....	18	28	60	8	-30	24	11	1.2	6	0.4	1.8	10.3	8.0	S.
Winter mean.....	19	29	.....	10	.....	.....	.....	4.1	18	3.8	3.8	31.0	.....	W.
March.....	29	40	71	19	-11	37	22	2.1	6	0.2	1.7	10.1	12.0	NE
April.....	44	56	85	33	12	47	39	2.8	8	1.5	2.8	3.1	6.0	NE
May.....	55	68	93	42	24	61	51	3.5	11	2.3	2.8	0.3	3.0	SE
Spring mean.....	43	55	.....	31	.....	.....	.....	8.4	25	4.0	7.3	13.5	.....	NE
June.....	65	77	95	52	31	68	61	3.0	10	2.5	1.8	0.0	0.0	SE
July.....	69	81	99	57	38	76	65	3.4	9	0.9	8.0	0.0	0.0	S.
August.....	67	79	97	55	36	74	63	2.6	9	3.2	3.4	0.0	0.0	SE
Summer mean.....	67	79	.....	55	.....	.....	.....	9.0	28	6.6	13.2	.....	.....	SE
September.....	60	73	97	48	22	65	56	3.2	9	4.0	6.3	0.0	0.0	S.
October.....	49	60	87	38	13	58	42	2.5	9	0.4	6.4	5.4	3.0	S.
November.....	34	42	70	25	-2	43	26	2.1	7	1.1	1.5	5.7	12.0	S.
Fall mean.....	48	58	.....	37	.....	.....	.....	7.8	25	5.5	14.2	11.1	.....	S.
Annual mean.....	44	55	99	33	-30	.....	.....	29.3	96	19.9	38.5	55.6	12.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	None.....	June 8, 12, 14, 15, 21; July 10-12, 18, 19, 27; Aug. 1; Sept. 1, 2.	1899	Jan. 29-31; Feb. 7, 9-12	July 23; Aug. 18, 19, 28, 30; Sept. 2.
1895	Feb. 5.....	May 29; June 1, 2; July 5-7; Sept. 3, 11, 19, 20.	1900	None.....	May 13; June 26; July 4, 5; Aug. 4-10, 19, 30; Sept. 5.
1896	None.....	May 9; June 21, 30; July 1, 2, 10-12, 29; Aug. 4-9.	1901	do.....	June 26-28; July 1, 14-16, 19-21, 29; Aug. 13, 14, 28; Sept. 4, 6.
1897	do.....	July 2-4, 8-10, 30; Sept. 7-9.	1902	Jan. 28.....	July 4, 7, 13.
1898	do.....	June 24; July 2, 16-19, 23; Aug. 31; Sept. 1-3.	1903	None.....	July 8, 28.

WISCONSIN.

Central District: BROWN COUNTY. Station: GREEN BAY.

F. W. CONRAD, Observer.

[Established by the Signal Service on September 1, 1886. Latitude, 44° 31' N. Longitude, 80° W. Elevation, 556 feet.]

This station is located near the northern limit of the city of Green Bay and the Fox River Valley, and within one block of the Fox River and 1 mile south of Green Bay. On the east side of the city, at a distance of 1 mile, the hills rise from 100 to 200 feet; on the west side there is an elevation of 100 feet within the distance of 3 miles, and a gradual rise south toward Lake Winnebago. The general surroundings of the station are open and give a free exposure for all instruments.

The station was first located on the third floor of the Jacobs House, No. 214 North Washington street; it was moved to the present location, third floor of the Parmentier Block, Nos. 324 to 328 North Washington street, May 1, 1891. The thermometers and wind instruments are exposed on the roof of the building. The thermometers are 11 feet 1 inch above the roof and 44 feet 8 inches above the ground. Rain gage is 43 feet, anemometer 85 feet 8 inches, and wind vane 84 feet 5 inches above ground, respectively.

Tabulated data are from the following periods of observation: Humidity, fifteen years, 1889-1903; remainder of data is from the full period of observation, seventeen years, September 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	22	29	51	16	-21	31	13	1.8	11	1.8	3.8	10.7	7.4	79	1.01	76	1.19	SW.
January.....	16	24	51	9	-36	23	5	1.8	11	2.0	3.3	14.4	22.0	79	0.74	77	0.91	SW.
February.....	17	25	59	9	-33	23	10	1.7	10	0.7	3.2	13.5	13.7	79	0.62	76	0.94	SW.
Winter mean.....	18	26	.....	11	.....	.....	.....	5.3	32	4.5	10.3	38.6	.....	79	0.79	76	1.01	SW.
March.....	28	36	72	20	-23	57	20	2.3	10	0.4	1.9	9.0	20.0	77	1.05	72	1.36	N.
April.....	44	53	84	35	11	48	39	2.5	10	1.2	2.8	2.1	8.0	77	1.88	65	2.15	N.
May.....	55	65	91	45	29	63	49	3.3	13	4.3	3.1	2.5	2.5	74	3.22	62	3.63	N.
Spring mean.....	42	51	.....	33	.....	.....	.....	8.1	33	5.9	7.8	13.6	.....	76	2.05	66	2.38	N.
June.....	66	76	96	55	34	70	61	3.6	11	2.4	5.2	0.0	0.0	75	4.47	64	4.98	S.
July.....	70	81	99	60	44	74	66	3.4	10	1.4	4.5	0.0	0.0	75	5.28	63	5.38	S.
August.....	68	78	98	58	41	75	64	2.7	10	3.7	4.6	0.0	0.0	80	5.07	64	5.34	SE.
Summer mean.....	68	78	.....	58	.....	.....	.....	9.7	31	7.5	14.3	0.0	.....	77	4.94	64	5.23	S.
September.....	60	70	95	51	25	66	56	3.3	10	1.2	1.8	0.0	0.0	81	3.93	67	4.10	S.
October.....	48	57	84	40	8	58	43	2.6	10	0.4	3.6	0.0	4.0	81	2.67	71	2.82	S.
November.....	33	40	69	26	-12	49	35	2.0	10	1.5	1.7	7.0	10.8	79	1.52	74	1.74	S.
Fall mean.....	47	56	.....	39	.....	.....	.....	7.9	30	3.1	7.1	7.0	.....	80	2.71	71	2.89	S.
Annual mean.....	44	53	99	35	-36	.....	.....	31.0	126	21.0	39.5	59.2	22.0	78	2.62	69	2.88	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 8, 25; Feb. 20, 21, 24.	June 12-15, 30; July 10-12, 17-19, 26, 27; Aug. 1, 8, 23; Sept. 1, 2.	1900	Jan. 30, 31; Feb. 1.....	June 25, 26; July 5, 6; Aug. 4-10, 19; Sept. 1, 5.
1895	Jan. 27, 28, 30; Feb. 1, 2, 4-7.	May 9, 29; June 9, 10; July 5, 7; Aug. 9, 16; Sept. 3, 5, 10, 11, 19-22.	1901	Dec. 14-16, 20.....	June 26-28; July 1, 14-16, 20, 21, 27; Sept. 6.
1896	Jan. 4, 5; Feb. 20.....	July 1, 29; Aug. 4-10.	1902	Jan. 27, 28.....	July 13.
1897	Jan. 24-26; Feb. 27; Dec. 2, 24.	June 14; July 2-4, 7, 8; Sept. 7-9.	1903	Jan. 13; Feb. 17, 18; Dec. 13, 14, 26.	None.
1898	Dec. 31.....	July 16-19, 23, 24; Aug. 31; Sept. 1, 2.			
1899	Jan. 1, 27-31; Feb. 1, 4-13.	July 23; Aug. 18, 19, 28-30.			

WISCONSIN.

Central Section: WAUSHARA COUNTY. Station: HANCOCK.

F. B. HAMILTON, Observer.

[Established at Westfield January, 1893; moved to Hancock December, 1902. Latitude, 44° 10' N. Longitude, 89° 32' W. Elevation, 1,197 feet.]

The station is located near the northwestern boundary of Waushara County, having been moved from Westfield a distance of 17 miles to the south. It is located on the western side and near the crest of the watershed which divides the Fox River basin from the Wisconsin River, which is distant about 20 miles to the west. The surrounding country is comparatively level with a gentle slope southward and westward toward the Wisconsin River.

The thermometers are exposed in a standard instrument shelter located about 12 feet above the ground on a platform leading from the second story of the observer's residence. The rain gage is located on the roof of a one-story addition on the east side of the residence.

The record made at this station has been combined with that made at Westfield, as it is believed that the conditions at these points do not materially differ. The mean monthly, seasonal, and annual temperatures have been obtained by dividing the sum of the daily maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	20	27	50	13	-25	30	12	1.2	6	1.8	1.1	7.5	5.0	W.	
January.....	16	24	53	8	-30	22	6	1.1	6	1.4	1.6	10.1	4.0	W.	
February.....	16	25	53	7	-35	24	12	1.2	6	1.2	1.6	7.9	9.5	W.	
Winter mean.....	17	25	.....	9	.....	.....	.....	3.5	18	4.4	4.3	25.5	.....	W.
March.....	30	38	73	21	- 8	38	21	1.7	7	0.5	1.2	6.5	4.0	W.	
April.....	46	57	85	36	11	40	42	2.4	9	1.0	2.9	2.8	5.0	W.	
May.....	58	70	93	40	25	65	52	3.7	10	1.8	5.6	0.5	3.0	W.	
Spring mean.....	45	55	.....	34	.....	.....	.....	7.8	26	3.3	9.7	9.8	.....	W.
June.....	67	79	99	56	31	71	62	4.2	8	1.4	7.3	0.0	0.0	W.	
July.....	72	83	100	60	44	77	69	4.0	9	1.8	4.0	0.0	0.0	W.	
August.....	69	80	100	58	40	74	63	2.9	8	3.4	4.0	0.0	0.0	W.	
Summer mean.....	69	81	.....	58	.....	.....	.....	11.1	25	6.6	15.3	0.0	.....	W.
September.....	61	71	94	50	20	66	65	2.6	8	1.4	2.7	0.0	0.0	W.	
October.....	50	60	84	40	15	55	44	2.1	8	0.4	1.0	0.5	6.0	W.	
November.....	32	40	68	24	10	40	28	1.2	6	1.7	1.1	3.9	4.0	W.	
Fall mean.....	48	57	.....	38	.....	.....	.....	5.9	22	3.5	4.8	4.4	.....	W.
Annual mean.....	45	54	100	35	-35	.....	.....	28.3	91	17.8	34.1	39.7	9.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 8, 25; Feb. 20, 21, 24.	June 11-16, 20, 21, 30; July 1, 10-12, 15-19, 24, 27, 30; Aug. 1, 8, 13, 17, 23, 24, 27; Sept. 1, 2.	1900	Jan. 29-31; Feb. 1, 9, 24, 27.	June 24-27; July 3-6; Aug. 4-10, 18-20; Sept. 5, 10.
1895	Jan. 4, 11, 24, 27-30; Feb. 1-11.	May 9, 29; June 2, 10, 25; July 5-7; Aug. 4, 9, 13, 14, 16; Sept. 10, 11, 19.	1901	Jan. 1; Dec. 14-18, 20.	June 24-28, 30; July 1-3, 9, 10, 13-17, 19-21, 24.
1896	Jan. 3-5; Feb. 17, 19-21.	June 6; July 12, 14; Aug. 5, 7, 10.	1902	Jan. 27, 28; Feb. 4; Dec. 8.	July 4, 13, 30.
1897	Jan. 24-27; Feb. 28; Dec. 18, 19.	June 13-15; July 2, 3, 7-9; Sept. 6-9.	1903	Jan. 10-13, 23; Feb. 17-19; Dec. 13-15, 17, 25, 26, 28, 30.	July 8, 25, 28.
1898	Jan. 3; Dec. 18.	June 4, 24; July 2, 15-18, 24; Aug. 30, 31; Sept. 2.			
1899	Jan. 1, 27, 29-31; Feb. 1-13.	June 4; July 23-25; Aug. 18, 19, 27, 28.			

WISCONSIN.

Central Section: FOND DU LAC COUNTY. Station: FOND DU LAC.

E. M. JENISON, Observer.

[Established October, 1892. Latitude, 43° 46' N. Longitude, 88° 29' W. Elevation, 800 feet.]

The city of Fond du Lac is located at the southern extremity of Lake Winnebago, a body of water about 35 miles from north to south and 15 miles wide and the largest inland lake in the State. The general contour of the country immediately surrounding the station, which is located about half a mile from the lake shore, is level with a very gentle descent northward toward the lake. The station is located at the residence of Mr. Jenison in the eastern outskirts of the city, where the general conditions do not differ materially from those of the open country.

The thermometers, a self-registering maximum and minimum, are exposed in a standard shelter located on the lawn 15 feet west from the residence of the observer. The shelter is 3 feet above sod. The rain gage is located on the open lawn 20 feet from the residence of the observer and free from interference.

The mean monthly, seasonal, and annual temperatures given in the accompanying table were obtained by dividing the sum of the daily maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	28	51	15	-21	27	16	1.2	6	1.4	2.6	4.5	14.0	NW.
January.....	18	26	54	10	-29	22	5	1.0	6	1.3	1.5	6.6	18.0	NW.
February.....	17	26	56	8	-30	23	9	0.8	5	0.3	1.3	5.6	11.0	NW.
Winter mean.....	19	27		11				3.0	17	3.0	5.4	16.7		NW.
March.....	31	39	72	22	-11	40	23	1.6	8	0.5	1.8	5.6	13.6	SW.
April.....	46	57	87	36	11	49	42	2.1	8	1.0	3.4	1.6	10.0	NW.
May.....	58	70	91	46	27	64	■	2.8	10	2.4	1.2	0.5	5.0	S.
Spring mean.....	45	55		35				6.5	26	3.9	6.4	7.7		SW.
June.....	66	78	95	54	34	70	63	2.9	8	0.7	2.1	0.0	0.0	SE.
July.....	71	83	100	59	40	73	69	4.2	9	2.2	7.9	0.0	0.0	SE.
August.....	68	80	100	56	40	75	65	3.1	7	3.2	2.0	0.0	0.0	SE.
Summer mean.....	68	80		56				10.2	24	6.1	12.0	0.0		SE.
September.....	62	73	96	51	25	66	58	2.8	8	1.0	2.5	0.0	0.0	SW.
October.....	51	60	85	41	8	58	42	2.3	8	0.3	1.6	0.2	1.0	SW.
November.....	34	42	68	26	-8	44	29	1.4	7	1.2	1.7	4.1	13.5	NW.
Fall mean.....	■	58		39				6.5	23	2.5	5.8	4.3		SW.
Annual mean.....	45	55	100	35	-30			26.2	90	15.5	29.6	28.7	18.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 8, 25; Feb. 4....	June 11-15; July 1, 10-12, 15-19, 24, 26, 27, 30; Aug. 1, 7, 8, 24; Sept. 1, 2.	1899	Jan. 1, 27-31; Feb. 1, 2, 4-13.	May 4, 6; June 2; July, Aug. and Sept. missing.
1895	Jan. 12, 27, 28, 30; Feb. 1-11.	May 29; June 3, 9, 10, 25; July 5-7, 16; Aug. 9, 14, 16; Sept. 5, 10, 11, 19-22.	1900	Jan. 30, 31; Feb. 1....	June 24-27; July 2-6, 14; Aug. 4-10, 20; Sept. 1, 2.
1896	Jan. 3-5; Feb. 19-21; Mar. 13, 14; Dec. missing.	Missing.	1901	Jan. 1; Dec. 4, 5, 20....	July missing.
1897	Jan. 24-26; Feb. 27; Dec. 18, 19, 21, 24.	June 14, 15, 21; July 2-4, 7-9; Sept. 6-9.	1902	Jan. 27, 28; Feb. 4....	July 4, 13, 30.
1898	Dec. 31.....	June 24; July 2, 7, 15-19, 24, 27, 28; Aug. 30, 31; Sept. 1-3.	1902	Jan. 12; Feb. 17, 18; Dec. 13-15, 17, 26.	July 8, 25, 28.

WISCONSIN.

Central Section: MANITOWOC COUNTY. Station: MANITOWOC.

JOHANNA LEPS, Observer.

[Established September 16, 1851. Latitude, 44° 7' N. Longitude, 87° 45' W. Elevation of barometer cistern above sea level, 598 feet.]

Manitowoc is located on Lake Michigan at the mouth of the Manitowoc River. To the north and south of the river the surface rises gradually for a distance of about half a mile, attaining an elevation at the highest point of about 80 feet above the level of the lake.

Meteorological observations were begun on September 16, 1851. The observing station was located in a two-story frame building, which occupied the crest of the elevation to the south of the Manitowoc River, and about 60 feet above the bed of the stream.

During the earlier years no shelter was used, the exposed thermometer being attached to the outside window blind on the north side of the house about 6 or 8 inches from the pane and about 6 feet above the ground.

In 1893 the observation station was moved from the old site just outside the city limits to the residence of Miss Lips on the crest of the ridge about half a mile south of the Manitowoc River and about 1,000 feet from the lake shore.

The instruments, consisting of a hygrometer (wet and dry bulb thermometer), self-registering maximum and minimum thermometers, are exposed in a window shelter attached to the second story window on the north side of the residence 16 feet above ground.

The mean temperatures, except the highest and lowest monthly means, given in the following table, were computed from the daily readings of the self-registering instruments, the series covering a period of twenty years from 1884 to 1903, inclusive.

In determining the absolute maximum and absolute minimum and the highest and lowest monthly mean temperatures for the entire record of fifty-two years was considered. The dates of frosts were taken from the date of the last occurrence of a freezing temperature (32°) in the spring, as shown by the self-registering minimum thermometer, and the first in the fall for twenty years, 1884 to 1903, inclusive. The precipitation record covers a period of forty-one years, 1863 to 1903, inclusive, and so far as known without the loss of a single observation.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maximum.	Mean of the min-ima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	
December.....	24	31	60	16	-21	38	14	1.7	7	1.5	5.5	7.0	W.
January.....	18	26	51	9	-32	33	6	1.7	8	1.6	0.7	8.5	NW.
February.....	18	27	56	10	-29	34	6	1.5	8	0.5	12.3	7.7	NW.
Winter mean.....	20	28	.....	12	.....	.....	.....	4.9	23	3.6	8.5	23.2	NW.
March.....	28	37	70	20	-13	41	20	2.0	9	0.4	1.6	6.0	W.
April.....	42	50	85	33	8	50	35	2.5	9	1.5	4.3	2.3	NE.
May.....	52	62	92	41	18	60	46	2.6	9	4.4	2.4	0.2	NE.
Spring mean.....	41	50	.....	32	.....	.....	.....	7.2	27	6.3	8.3	8.5	NE.
June.....	62	72	97	51	33	68	58	3.4	9	1.5	5.2	0.0	SE.
July.....	67	78	100	56	38	74	63	3.7	9	1.8	5.4	0.0	SE.
August.....	66	76	99	56	39	72	62	3.1	8	3.5	48	0.0	E.
Summer mean.....	65	75	.....	54	.....	.....	.....	10.2	26	6.8	15.4	0.0	SE.
September.....	59	68	96	49	26	67	54	3.0	8	1.2	1.6	0.0	SW.
October.....	48	56	84	39	11	54	42	2.6	7	0.5	5.0	0.4	SW.
November.....	34	42	69	27	-10	42	28	2.1	6	2.2	1.8	3.8	NW.
Fall mean.....	47	55	.....	38	.....	.....	.....	7.7	21	3.9	8.4	4.2	SW.
Annual mean.....	43	52	100	34	-32	.....	.....	30.0	97	20.6	40.6	35.9	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1872, TO DECEMBER 31, 1881.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1872	Dec. 21-24.	June 29; July 2, 9, 12; Aug. 21; Sept. 6.	1876	Feb. 2; Dec. 9, 16.	July 17.
1873	Jan. 9, 10, 28, 29; Feb. 2, 22, 23.	Aug. 21; Sept. 11.	1877	None.	July 8.
1874	Jan. 25; Dec. 20.	June 22, 23, 25, 28; July 3, 6, 7, 19, 29; Aug. 11, 19; Sept. 7.	1878	do.	July 20; Aug. 8.
1875	Jan. 4, 5, 8-10, 14, 17, 19; Feb. 4-9, 11, 12, 14-16.	July 15.	1879	Jan. 2, 3; Feb. 14, 27; Dec. 26.	July 14; Aug. 2, 29.
			1880	Dec. 27-30.	June 23; Aug. 13.
			1881	Jan. 10, 14.	July 3-5; Aug. 4.

WISCONSIN.

Central District: LA CROSSE COUNTY. Station: LA CROSSE.

R. Q. GRANT, Observer.

[Established by Signal Service October 15, 1872. Latitude, 43° 49' N. Longitude, 91° 15' W. Elevation, 672 feet.]

The station is located in the business portion of the city of La Crosse, on the east bank of the Mississippi River and 1,600 feet therefrom. On each side of the river steep bluffs rise from 300 to 450 feet above the bottom land on which the city stands and are about 2 miles distant from the station on the east and 3 miles on the west.

The instruments in use are exposed on the roof of the Government building, an edifice of three stories, situated at the corner of Fourth and State streets. No buildings of equal or superior height stand in the same block to interfere with a proper exposure of the instruments. The thermometers are exposed in a standard instrument shelter 11 feet above the roof and 71 feet above the ground. The rain and snow gages are located upon the roof, top of gages 3 feet above the roof and 63 feet above ground. The anemometer cups are 27 feet above the roof and 87 feet above ground; the wind vane, 25 feet above the roof and 85 feet above ground.

From the establishment of the station, October 15, 1872, till May 12, 1881, the station was located in the Mons Anderson Building, corner Second and Main streets; from the latter date till February 1, 1887, in the Opera House Block, corner Fourth and Main streets, after which, until May 2, 1890, it was located in the McMillan Building, at the intersection of the same streets. On the latter date the station was removed to its present location, which it has since occupied.

Tabulated data are from the following periods of observation: Humidity, 8 a. m., fifteen years; 8 p. m., seven years. Remainder of data from full period, thirty-one years, January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	23	30	61	15	-26	39	8	1.4	10	1.3	0.3	7.7	16.0	82	1.01	76	1.23	S.
January.....	16	24	57	7	-43	31	3	1.1	11	0.2	1.5	9.6	12.0	83	0.74	76	0.82	S.
February.....	19	27	65	10	-34	37	6	1.1	8	1.4	1.3	8.9	10.0	82	0.74	75	0.97	S.
Winter mean.....	19	27	.....	11	.....	.....	.....	3.6	29	2.9	3.1	26.2	.....	82	0.83	76	1.01	S.
March.....	31	39	78	22	-23	47	21	1.6	10	0.3	1.0	7.5	11.0	78	1.16	70	1.54	N.
April.....	48	58	87	39	10	54	31	2.4	11	1.9	1.4	1.6	7.0	73	2.16	55	2.16	S.
May.....	60	69	96	49	29	68	52	3.5	12	0.5	2.1	T.	0.0	74	3.35	55	3.27	S.
Spring mean.....	46	55	.....	37	.....	.....	.....	7.5	33	2.7	5.5	9.1	.....	75	2.22	60	2.32	S.
June.....	69	78	98	39	33	74	64	4.4	12	1.0	2.8	0.0	0.0	79	5.02	64	5.44	S.
July.....	73	83	104	63	46	79	67	4.1	10	1.8	8.9	0.0	0.0	80	5.79	57	5.68	S.
August.....	71	80	101	60	39	78	66	3.3	9	2.2	5.0	0.0	0.0	84	5.33	60	5.27	S.
Summer mean.....	71	80	.....	61	.....	.....	.....	11.8	31	5.0	16.7	0.0	.....	81	5.38	60	5.46	S.
September.....	62	72	97	52	24	68	56	4.0	10	4.4	10.9	0.0	0.0	84	4.07	64	4.48	S.
October.....	50	60	88	41	6	59	44	2.5	9	1.6	7.6	0.2	0.8	82	2.61	64	2.70	S.
November.....	34	42	72	26	-21	42	25	1.5	8	0.8	1.2	4.4	6.6	81	1.50	72	1.77	S.
Fall mean.....	49	58	.....	40	.....	.....	.....	8.0	27	6.8	19.7	4.6	.....	82	2.72	67	2.98	S.
Annual mean.....	46	54	104	37	-43	.....	.....	30.9	120	17.4	45.0	39.9	16.0	80	2.79	66	2.94	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 7, 8, 24, 25.....	July 11, 16-19, 26, 27; Aug. 8.	1900	Jan. 30, 31; Feb. 9, 24..	Aug. 19, 20.
1895	Jan. 24, 27, 28, 30; Feb. 1-5, 7-12.....	Aug. 9; Sept. 11.	1901	Dec. 13-15, 18-20.....	June 24-28, 30; July 14-16, 19-21, 23, 24.
1896	Jan. 3-5, 19, 20.....	Aug. 4.	1902	Jan. 27, 28; Feb. 3, 4; Dec. 10.	None.
1897	Jan. 24-28; Feb. 27, 28.	July 8.	1903	Feb. 16-18; Dec. 12, 13, 15, 17, 26.	Do.
1898	Dec. 31.....	Aug. 22; Sept. 2.			
1899	Jan. 1, 7, 27-31; Feb. 4-13.	None.			

WISCONSIN.

Southern Section: VERNON COUNTY. Station: VIROQUA.

F. W. ALEXANDER, Observer.

[Established October, 1891. Latitude, 43° 34' N. Longitude, 90° 54' W. Elevation, 1,281 feet.]

Viroqua is located about the center of Vernon County, near the headwaters of Bishop Branch, a tributary of West Kickapoo River, and about 20 miles east of the Mississippi River. The surrounding country is open prairie, generally rolling, with a few hills about 150 feet above the general level.

The maximum and minimum thermometers are exposed in a standard instrument shelter, located 40 feet from the southeast corner of the observer's residence. The shelter is 4 feet above sod. The rain gage is 8 feet west of the instrument shelter and 60 feet from residence.

The mean monthly, seasonal, and annual temperatures have been computed by dividing the sum of the maxima and minima by 2. The dates of the killing frosts were taken from the last occurrence of a freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	20	27	50	13	-27	28	12	1.6	7	2.0	0.7	7.4	8.0	NW.
January.....	17	25	55	9	-26	22	9	1.2	7	0.6	1.0	7.7	5.0	NW.
February.....	15	23	56	7	-31	23	3	1.5	6	1.0	1.4	9.9	10.5	NW.
Winter mean.....	17	25	.....	9	.....	.....	.....	4.3	20	3.6	3.4	25.0	.....	NW.
March.....	30	32	74	21	-10	37	21	2.3	8	0.3	1.7	9.5	6.0	NW.
April.....	47	57	87	37	13	50	40	4.3	9	1.3	3.6	2.3	13.0	SW.
May.....	58	70	92	47	26	64	53	4.0	12	4.9	2.8	0.3	2.0	SW.
Spring mean.....	45	55	.....	35	.....	.....	.....	10.6	29	6.5	8.1	12.1	.....	SW.
June.....	66	78	97	55	30	70	61	4.8	9	3.7	1.6	0.0	0.0	SW.
July.....	71	83	103	60	42	76	68	4.5	8	1.3	9.2	0.0	0.0	SW.
August.....	69	80	100	57	38	75	64	3.7	7	2.5	4.0	0.0	0.0	NW.
Summer mean.....	69	80	.....	57	.....	.....	.....	13.0	24	7.5	14.8	0.0	.....	SW.
September.....	61	72	95	50	21	67	56	3.8	8	2.4	4.8	0.0	0.0	S.
October.....	50	60	86	40	12	57	43	3.0	7	0.6	6.8	0.3	0.2	SW.
November.....	32	41	70	24	-10	42	28	1.7	6	1.5	2.1	5.5	4.0	NW.
Fall mean.....	48	58	.....	38	.....	.....	.....	8.5	21	4.5	13.7	5.8	.....	SW.
Annual mean.....	45	55	103	35	-31	.....	.....	36.4	94	22.1	40.0	42.9	13.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 7, 24, 25, 27.....	June 11-15, 31; July 9-12, 15-19, 23, 24, 26-28, 30, 31; Aug. 1, 7, 8, 13, 17, 20, 23, 24, 27, 28; Sept. 12.	1899	Jan. 17, 27-31; Feb. 2-13; Mar. 6, 7; Dec. 29, 30.	Aug. 10, 18, 19, 27.
1895	Jan. 4, 11, 12, 23, 24, 27, 28, 30; Feb. 1-11.	May 9, 28, 29; June 9; July 5-7, 12-14, 16; Aug. 2, 4, 9, 13, 14, 16; Sept. 3, 5, 10, 11, 19, 20.	1900	Jan. 28-31; Feb. 1, 9-16, 24.	June 24-26; July 4; Aug. 8, 9, 18-20; Sept. 5.
1896	Jan. 2-5; Feb. 19, 20.....	July 12, 14, 29; Aug. 4, 5, 7-10.	1901	Jan. 1; Dec. 13-15, 18-20.	June 14, 24-28, 30; July 1, 2, 9, 10, 13-17, 19-25; Aug. 17-21; Sept. 6.
1897	Jan. 24-27; Feb. 26, 27; Dec. 18, 22.	June 13-17; July 1, 2, 6-8; Sept. 8, 9, 12.	1902	Jan. 27, 28; Feb. 2-5, 8; Dec. 8.	None.
1898	Dec. 9, 13, 31.....	June 4, 24; July 7, 15-18, 23, 24; Aug. 30, 31; Sept. 1-3.	1903	Jan. 11, 12; Feb. 16-18; Dec. 13-15, 30.	Do.

WISCONSIN.

Southern Section: GRANT COUNTY. Station: LANCASTER.

EDWARD POLLOCK, Observer.

[Established October, 1891. Latitude, 42° 50' N.; Longitude, 90° 42' W. Elevation, 1,070 feet.]

Lancaster is located near the center of Grant County, in the extreme southwestern portion of the State, and about 20 miles from the Mississippi River. The surface of the surrounding country is rolling, with a gentle slope southwestward toward the river. The station is located a short distance to the northeast of the center of the city at the residence of the observer.

The thermometers, maximum and minimum, are exposed in a standard shelter, located 4½ feet above sod on the open lawn 35 feet from the observer's residence. The rain gage is exposed on the open lawn 25 feet from a low one-story wood house and is free from interference from trees or buildings.

The mean monthly, seasonal, and annual temperatures have been obtained by dividing the sum of the daily maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of a freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	20	28	51	11	-22	27	13	1.2	6	1.2	0.2	6.7	6.0	
January.....	17	26	40	8	-27	22	3	1.2	5	0.7	0.9	8.7	10.0	
February.....	15	25	53	4	-29	22	9	1.1	5	1.1	1.1	8.8	8.0	
Winter mean.....	17	26		8				3.5	16	3.0	2.2	24.2		
March.....	31	41	82	21	-10	3	22	1.4	7	2.8	2.0	6.7	6.0	
April.....	48	59	88	36	11	5	42	3.1	7	1.1	3.6	1.1	5.0	
May.....	60	71	95	48	28	65	55	3.9	10	2.9	2.7	0.0	0.0	
Spring mean.....	46	57		35				8.7	24	6.8	8.3	7.8		
June.....	68	80	95	56	35	71	63	3.6	9	1.3	1.5	0.0	0.0	
July.....	72	85	107	60	42	80	70	4.5	7	1.6	9.4	0.0	0.0	
August.....	70	83	100	58	42	75	66	2.4	7	0.6	4.0	0.0	0.0	
Summer mean.....	70	83		58				10.5	23	3.5	14.9	0.0		
Sept.....	61	73	95	49	20	64	56	3.3	8	3.3	4.8	0.0	0.0	
October.....	50	61	86	39	14	57	41	2.1	6	3.3	3.6	T.	T.	
November.....	32	42	70	23	-7	41	28	1.5	6	1.3	1.8	4.5	4.5	
Fall mean.....	48	59		37				7.0	20	7.9	10.2	4.5		
Annual mean.....	45	56	107	34	-29			29.7	83	21.2	35.6	36.5	10.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 2, 4, 25, 26; Feb. 21; Dec. 4, 24, 25, 27-31.	June 11-15, 20-22, 29, 30; July 9-12 15-19, 23, 24, 26-31; Aug. 1, 6-8, 24; Sept. 1, 2.	1899	Jan. 1, 2, 7, 28-31; Feb. 1, 4, 5, 7-14, 24, 25; Mar. 7; Dec. 31.	June 4, 13, 19; July 21-23, 25; Aug. 10, 18, 19, 23, 27-31.
1895	Jan. 1-5, 7-12.	May 9, 28, 29; June 2, 4; July 5-7, 12-14, 16-18, 20; Aug. 9, 13, 16, 22, 27; Sept. 10, 11.	1900	Jan. 28, 29, 31; Feb. 1, 9, 10, 16, 17, 25.	June 25, 26; July 3-5; Aug. 4-10; Sept. 5.
1896	Jan. 3-5; Feb. 20, 21.	July 1, 12-14, 29, 30; Aug. 4, 5, 7-10.	1901	Jan. 1, 2; Dec. 14, 15, 18-20.	June 11, 14, 24-30; July 1, 2, 4, 9-29; Aug. 7, 13, 14, 16, 17, 19-21, 24, 28; Sept. 3-6.
1897	Jan. 24-27; Dec. 18, 22.	June 13-17; July 1-3, 5-9, 18, 24, 29, 30; Aug. 1; Sept. 5, 7-9, 12, 13.	1902	Jan. 27, 28; Feb. 2-6; Dec. 8, 25, 28.	July 30.
1898	Dec. 9, 10, 14, 31.	June 3, 4, 23, 24, 29; July 1, 2, 6, 7, 14-19, 23, 24, 27; Aug. 21, 22, 30, 31; Sept. 1-4.	1903	Jan. 12; Feb. 16-18; Dec. 13, 26, 20.	July 2, 7.

WISCONSIN.

Southern Section: DANE COUNTY. Station: MADISON.

J. L. BARTLETT, Observer.

[Established in 1853. Latitude 43° 05' N. Longitude, 89° 23' W. Elevation, 974 feet.]

Observations were begun at the north dormitory of the University of Wisconsin, Madison, Wis., by Prof. S. H. Carpenter, in January, 1853, and were continued with short lapses, by Prof. J. W. Sterling, and Prof. W. W. Daniels, either there or in the neighboring main hall of the university until October, 1878, except for a short period from March, 1856, to January, 1857, when the observations were made by Dr. A. Schue at his office on Main street. From October, 1878, to April, 1883, observations were made by Signal Corps observers in Brown's block in the city of Madison. The instrumental equipment was then transferred to the north dormitory, and in August, 1883, to the Washburn Observatory (astronomical). At the latter point observations were taken continuously until December 31, 1904. The present Weather Bureau station was established on September 15 of that year in north hall, formerly north dormitory.

For the precipitation means, except those of snowfall, the period from 1869 to 1904, inclusive, was considered; for the average number of days with 0.01 inch or more no data previous to October, 1878, were used; the snowfall data began with the year 1884. The dates of killing frosts were taken from the last occurrence of a freezing temperature (32°) in the spring and its first occurrence in the fall. The mean relative humidity was computed from the tri-daily observations for thirty-six years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.		Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			Relative.		Absolute.
												Average depth.	Greatest depth in 24 hours.				
December.....	23	29	60	16	-28	39	10	1.7	10	1.8	1.3	8.1	7.0	82	1.162	NW.	
January.....	16	24	58	9	-29	34	4	1.7	8	1.1	2.0	8.5	9.4	82	0.847	NW.	
February.....	19	26	63	10	-28	34	3	1.6	7	0.3	5.4	9.3	7.3	81	0.957	NW.	
Winter mean.....	19	26	.....	12	.....	.....	.....	5.0	25	3.2	8.7	23.9	.....	82	0.980	NW.
March.....	30	38	86	22	-12	44	22	2.2	9	0.3	4.4	7.6	11.0	75	1.451	NW.	
April.....	46	55	86	37	8	52	35	2.4	9	1.1	1.5	1.0	4.8	68	2.406	S.	
May.....	58	68	90	49	23	67	52	3.5	11	2.2	4.2	T.	T.	66	3.544	S.	
Spring mean.....	45	54	.....	36	.....	.....	.....	8.0	29	3.5	10.1	8.6	.....	70	2.467	S.
June.....	68	77	98	58	38	74	62	4.2	11	0.6	4.2	0.0	0.0	71	5.311	SW.	
July.....	72	82	104	63	48	80	67	4.1	10	1.2	9.5	0.0	0.0	70	5.156	SW.	
August.....	70	78	96	61	46	75	65	3.1	9	2.1	0.6	0.0	0.0	71	5.046	S.	
Summer mean.....	70	79	.....	61	.....	.....	.....	11.4	30	3.9	14.2	0.0	.....	71	5.644	SW.
September.....	62	70	93	54	29	68	55	3.2	9	0.8	8.2	0.0	0.0	74	4.545	S.	
October.....	50	58	84	42	12	59	38	2.5	8	0.6	9.1	0.1	1.0	73	2.975	S.	
November.....	34	42	69	28	-14	42	27	1.8	7	1.2	2.6	3.0	4.5	78	1.777	NW.	
Fall mean.....	49	57	.....	41	.....	.....	.....	7.5	24	2.6	19.9	3.1	.....	75	3.069	S.
Annual mean.....	46	54	104	38	-29	.....	.....	31.9	108	13.1	52.9	39.2	11.0	74	3.050	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 25.....	June 13, 14; July 10, 12, 15-19, 26, 27, 30; Aug. 7, 8; Sept. 1.	1899	Jan. 27-31; Feb. 7-13	July 23.
1895	Jan. 27, 28, 30; Feb. 1-5, 7, 8.	June 3, 9, 10; July 5-7; Aug. 9, 13, 14, 16; Sept. 11.	1900	Jan. 31; Feb. 1, 24....	Aug. 18-20.
1896	Jan. 4; Feb. 19, 20....	July 14; Aug. 8.	1901	Dec. 13, 14, 20.....	June 24-28, 30; July 1, 2, 4, 9-11, 13-27.
1897	Jan. 24-27; Feb. 27....	June 14; July 3, 7-9, 19, 24; Sept. 9.	1902	Jan. 27, 28; Feb. 4....	None.
1898	Dec. 31.....	July 15, 18.	1903	Jan. 11; Feb. 17, 18; Dec. 13, 26.	Do.

WISCONSIN.

Southern Section: JEFFERSON COUNTY. Station: HARVEY.

S. N. D. SMITH, Observer.

[Established October, 1891. Latitude, 43° 2' N. Longitude, 88° 52' W. Elevation, 888 feet.]

Harvey is located near the center of Jefferson County. The general contour of the surrounding country is mainly level, with a gentle slope toward the southeast. To the north there is a slight increase of elevation for about a mile. Pock Lake, a considerable body of water, lies to the northwest at a distance of about 3 miles.

The thermometers, maximum and minimum, Weather Bureau pattern, are exposed in a standard shelter, located 70 feet northeast of the observer's residence and 4 feet 8 inches above sod. During the winter months, as a matter of convenience in taking the observations, it has been the observer's habit to remove the shelter to the open veranda on the northeast side of the residence. The rain gage is located on the open lawn, 80 feet from the observer's residence. The top of the gage is 30 inches above ground.

The mean monthly, seasonal, and annual temperatures have been computed by dividing the sum of the maxima and minima by 2. The dates of killing frosts were taken from the last occurrence of freezing temperature (32°) in the spring and its first occurrence in the fall.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1904.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	22	29	55	16	-19	29	15	1.4	10	1.2	1.0	5.9	4.0	W.
January.....	19	26	57	12	-21	24	7	1.3	8	1.1	0.4	6.8	6.5	NW.
February.....	17	26	59	8	-24	24	8	1.5	8	0.9	1.2	6.0	4.2	NW.
Winter mean.....	19	27		12				4.2	26	3.2	2.6	18.7		NW.
March.....	32	40	78	24	-4	39	25	2.1	10	2.8	2.6	5.9	4.0	SW.
April.....	47	58	87	36	14	52	43	2.6	10	0.8	2.2	1.0	1.0	SW.
May.....	59	71	90	47	29	66	56	4.2	12	3.0	4.5	T.	T.	SW.
Spring mean.....	46	56		36				8.9	32	6.6	9.3	6.9		SW.
June.....	68	80	99	55	32	70	63	3.6	9	1.8	3.8	0.0	0.0	SW.
July.....	72	84	107	58	41	79	70	3.8	9	1.4	9.4	0.0	0.0	SW.
August.....	70	82	98	58	41	76	66	3.5	9	1.0	7.7	0.0	0.0	SW.
Summer mean.....	70	82		58				10.9	27	4.2	20.9	0.0		SW.
September.....	62	73	96	50	24	67	57	3.4	9	3.5	4.9	0.0	0.0	SW.
October.....	50	61	90	40	10	57	43	2.5	8	2.8	1.7	0.3	0.3	SW.
November.....	34	42	69	26	17	43	30	2.0	8	0.8	1.0	7.0	13.5	NW.
Fall mean.....	49	59		39				7.9	25	7.1	7.6	7.3		SW.
Annual mean.....	48	56	107	36	-24			31.9	110	21.1	40.4	32.9	13.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 25; Feb. missing.	June 11-16; July 1, 10-12, 15-19, 24-27, 30; Aug. 1, 7, 8, 14, 24, 28; Sept. 12.	1899	Jan. 29-31; Feb. 7-13; Dec. 31.	July 23, 24; Aug. 10, 18, 19, 27-31; Sept. 1, 2, 5, 16.
1895	Jan. 4, 27, 28, 30; Feb. 1, 2, 4-9, 11.	May 29; June 3, 9, 10, 17, 25; July 5-7; Aug. 9, 10, 14, 16; Sept. 10, 11, 19-22.	1900	Jan. 31; Feb. 16.....	May 27; June 24-26; July 1-4, 14; Aug. 4-11, 18-20; Sept. 5, 10.
1896	Jan. 4, 5; Feb. 19, 20..	June 6, 20; July 1, 2, 11-14, 20; Aug. 4-8, 10.	1901	Jan. 1; Feb. 22; Dec. 14, 15, 20.	May 2; June 12, 24-28, 30; July 1-5, 9, 10, 12-28; Aug. 13, 14, 16, 17, 28; Sept. 4-6.
1897	Jan. 24-26; Feb. missing; Dec. 24.	June 13-15; July 2-4, 7-9, 30; Sept. 5-10, 12-14; Oct. 1, 4.	1902	Jan. 27, 28; Feb. 5....	July 30.
1898	Feb. 3; Dec. 31.....	June 4, 30; July 1, 2, 7, 15-19, 24; Aug. 22, 23, 31; Sept. 1.	1903	Feb. 17, 18; Dec. 13, 14, 26.	July 8.

WISCONSIN.

Southern Section: MILWAUKEE COUNTY. Station: MILWAUKEE.

W. M. WILSON, Section Director.

[Established October 14, 1870. Latitude, 43° 2' N. Longitude, 87° 54' W. Elevation, 69 feet.]

The city of Milwaukee is located on the west shore of Lake Michigan, about 100 miles north from its southern extremity, and at the confluence of the Milwaukee, Menominee, and Kinnickinnic rivers, which enter the city from the north, west, and south, respectively, and converge near the lake shore. The three valleys formed by these rivers, those of the Milwaukee and Menominee being well-marked depressions, divide the city into three natural divisions, viz, the "east, west, and south sides," and give a general rolling contour to the surface.

The observation station has been located on the "east" side since the establishment of the Weather Service in 1870—that is, between the Milwaukee River and the lake shore—and while several different buildings have been occupied during this time, the general conditions surrounding the different points of observations have remained essentially the same.

The present elevations of the instruments above ground are: Thermometers, 124 feet; top of rain gage, 116 feet; anemometer cups, 142 feet.

The mean monthly, seasonal, and annual temperatures have been computed from daily observations for thirty-three years by dividing the sum of the maxima and minima by 2. The precipitation record, except that referring to snow, covers a period of thirty-three years. The average depth of snow has been computed from nineteen years' record; the greatest in twenty-four hours from eleven years; the mean humidity from fifteen years; the sunshine from three years, and the direction of prevailing wind from thirty-three years' record.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
		° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	In.	P. ct.	Gr.	P. ct.	Gr.			
December.....	25	32	63	20	-22	37	14	1.9	12	1.7	2.2	9.1	80	1.24	76	1.41	128	39	W. N. W.
January.....	20	27	59	13	-25	34	10	2.0	12	1.3	4.4	12.5	79	0.94	78	1.10	132	40	W. N. W.
February.....	22	30	60	15	-24	36	8	1.9	11	1.9	3.0	14.2	79	0.93	76	1.13	142	43	W. N. W.
Winter mean.....	22	30	.....	16	.....	.....	.....	5.8	35	4.9	10.2	35.8	79	1.04	77	1.21	134	41	W.
March.....	31	38	70	24	-8	40	23	2.6	12	3.6	5.3	8.7	79	1.41	76	1.61	127	38	N. W.
April.....	43	52	80	37	12	50	36	2.6	11	0.5	2.8	1.4	75	2.14	71	2.35	153	48	N. E.
May.....	54	63	92	45	25	62	48	3.3	12	1.8	8.5	0.1	75	3.27	68	3.41	170	52	N.
Spring mean.....	43	51	.....	35	.....	.....	.....	8.5	35	5.9	16.6	10.2	76	2.27	72	2.46	150	46	N. E.
June.....	64	72	95	55	38	69	58	3.7	11	1.1	4.8	0.0	78	5.39	71	4.78	174	53	S. E.
July.....	70	78	100	62	47	76	66	3.1	10	2.0	4.4	0.0	76	5.68	67	5.69	200	61	S. W.
August.....	69	76	98	61	42	75	63	2.7	9	1.5	5.5	0.0	78	5.47	69	5.71	181	55	S. W.
Summer mean.....	68	73	.....	59	.....	.....	.....	9.5	30	4.6	14.7	0.0	77	5.51	69	5.39	185	56	S. W.
September.....	61	70	95	54	30	67	57	3.0	10	1.9	3.7	T.	80	4.27	71	5.03	179	54	S. W.
October.....	50	58	88	44	15	50	36	2.2	9	0.6	1.6	0.2	81	2.85	71	3.12	156	47	S. W.
November.....	35	43	70	30	-14	45	27	2.0	10	0.8	3.4	4.5	80	1.83	74	1.96	123	37	N. W.
Fall mean.....	49	57	.....	43	.....	.....	.....	7.2	29	3.3	8.7	4.7	80	2.98	72	3.37	153	46	S. W.
Annual mean.....	45	53	100	38	-25	.....	.....	31.0	129	18.7	50.2	50.7	88	2.95	72	3.11	135	47	S. W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 25.....	June 11, 15, 21, 29; July 10-12, 16, 19, 24, 27, 28; Aug. 1, 7, 8; Sept. 1.	1899	Jan. 29-31; Feb. 7-12..	June 4, 6; July 26; Aug. 19, 20; Sept. 2, 5, 16.
1895	Jan. 27, 28; Feb. 1, 2, 4, 5, 8.	May 29; June 2; July 16; Aug. 9, 10, 14; Sept. 10, 11, 19, 20, 22.	1900	Jan. 31; Feb. 1.....	June 26; July 3-6, 14, 15; Aug. 4-11, 20; Sept. 5, 10.
1896	Jan. 4.....	May 9; July 12-14, 29; Aug. 4, 5, 8-11.	1901	Dec. 14, 15, 20.....	June 11, 26, 28, 30; July 1, 5, 20, 21, 27-29.
1897	Jan. 24-26.....	June 15; July 3, 4, 9, 30; Sept. 6, 8, 9.	1902	Jan. 28.....	July 1, 13, 30.
1898	None.....	June 2, 4, 29; July 2, 7, 17, 18, 27; Aug. 23, 31; Sept. 1-3.	1903	Feb. 17, 18; Dec. 13, 26.	July 8, 28.

WISCONSIN.

Southern Section: ROCK COUNTY. Station: BELOIT.

S. C. LATHROP, Observer.

[Established January 1, 1850. Latitude, 42° 30' N. Longitude, 89° 2' W. Elevation, 750 feet.]

Meteorological records were begun at Beloit College on January 1, 1850, and have been continued by the college and later by the Smith Observatory to the present time.

Beloit is located in the Rock River Valley a few miles north of the Illinois boundary line. The surrounding country is mainly rolling, with a rather sharp ascent from the river to the crest of the bluffs, which rise to a height of 50 to 60 feet on either side.

The thermometers are exposed in a window shelter located on the north side of the transit room and about 8 feet above ground. The shelter consists of an unpainted box 30 by 30 by 9 inches, the roof and two sides being wood, while the bottom and back are of wire netting. The thermometers are attached to a transverse bar about midway between the window pane and the back of the shelter. The rain gage is exposed on the roof of the observatory 10 feet east of the dome, the top of which is about 10 feet above the surface of the gage. The gage is 20 feet above the ground.

The mean monthly, seasonal, and annual temperatures given in the accompanying table were obtained by dividing the sum of the maxima and minima by 2. The mean monthly, seasonal, and annual precipitation and the total amount for the driest and wettest years cover a period of thirty-eight years, 1866 to 1903, inclusive, while temperature values, the number of days with 0.01 or more, and the average and greatest snowfall cover a period of eleven years, 1893 to 1903, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	23	31	58	16	-25	31	15	1.9	6	1.6	2.7	4.6	6.0	SW.
January.....	20	29	58	12	-23	27	8	1.9	6	1.4	2.4	8.6	10.0	W.
February.....	19	28	59	9	-23	26	14	1.8	5	1.7	6.8	9.0	7.0	W.
Winter mean.....	21	29	.....	12	.....	.....	.....	5.6	17	4.7	11.9	22.2	.....	W.
March.....	34	42	80	25	-4	41	27	2.2	6	2.8	4.4	4.8	6.0	SW.
April.....	49	59	84	39	18	55	45	2.7	7	0.4	1.5	0.5	6.0	N.
May.....	60	70	91	50	31	67	53	3.6	9	2.4	3.2	0.0	0.0	S.
Spring mean.....	48	57	.....	38	.....	.....	.....	8.5	22	5.6	9.1	5.3	.....	S.
June.....	68	79	98	58	36	72	63	4.1	7	1.5	5.2	0.0	0.0	S.
July.....	74	85	105	62	46	80	71	3.7	7	2.1	6.2	0.0	0.0	SW.
August.....	71	82	96	60	42	76	67	3.5	5	0.8	0.8	0.0	0.0	SW.
Summer mean.....	71	82	.....	60	.....	.....	.....	11.3	19	4.4	12.2	0.0	.....	SW.
September.....	61	69	94	53	23	69	59	3.3	7	2.0	4.9	0.0	0.0	SW.
October.....	50	59	83	40	-2	59	45	2.2	5	0.9	6.0	0.5	3.0	S.
November.....	38	46	69	29	-4	44	32	1.9	5	1.2	2.4	4.3	13.0	W.
Fall mean.....	50	58	.....	41	.....	.....	.....	7.4	17	4.1	13.3	4.8	.....	S.
Annual mean.....	47	57	105	38	-25	.....	.....	32.8	75	18.8	46.5	32.3	13.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 25.....	June 11, 12, 14, 15, 21, 29; July 1, 10-12, 15-19, 26, 27, 30, 31; Aug. 1, 7, 8, 23, 28; Sept. 1, 2.	1899	Jan. 29-31; Feb. 8-11, 13.	July 24; Aug. 10, 11, 18, 19, 23, 27-31; Sept. 2, 5.
1895	Jan. 27, 28, 30; Feb. 1-5, 7-9, 11, 12.	May 29; June 3, 9, 10, 17, 25; July 5-7, 12, 13, 21; Aug. 9, 11, 14, 16, 17; Sept. 10, 11, 19-22.	1900	Feb. 1, 16.....	July 2-4, 15; Aug. 3-11, 18, 19.
1896	Jan. 4, 5; Feb. 20.....	June 6, 20; July 1, 3, 11-14; Aug. 4-9.	1901	Jan. 1; Feb. 6; Dec. 14, 15, 20.	June 12, 24-28, 30; July 1, 2, 4, 5, 9-12, 14, 15, 17, 19-26, 28; Aug. 7; Sept. 5, 6.
1897	Jan. 24-26; Dec. 17.....	June 13-16; July 2-4, 7-10, 30; Aug. 1, 2, 8; Sept. 5, 7-10, 13, 14.	1902	Jan. 27, 28; Dec. 25, 26.	None.
1898	None.....	July 1, 2, 15-19; Aug. 23.	1903	Feb. 17, 18; Dec. 13, 15, 17, 25, 26, 28-30.	July 2, 3, 8, 9, 28; Aug. 23.

MICHIGAN.

By CHARLES F. SCHNEIDER,
Section Director.

MICHIGAN.

The climate of Michigan is insular to a marked degree, owing to the fact that both peninsulas are almost entirely surrounded by the Great Lakes. The topography of the State may generally be described as rolling, except over the western central portions of the Upper Peninsula, which are rugged and almost mountainous. The elevations in the Lower Peninsula slope gradually upward from the lake level to the two large divides, which are located in Otsego, Crawford, and Roscommon counties and over Jackson and Hillsdale counties. The extreme elevation of the former divide is nearly 1,400 feet, or about 800 feet above lake level. The apex of the southern divide is nearly 600 feet above lake level. In the Upper Peninsula the land is low and flat over the four eastern counties, but over most of Marquette, Dickinson, and Iron counties the elevations rise abruptly and in rocky masses to nearly 1,000 feet above lake level, gradually sloping down to fine rolling land with an elevation of 500 to 600 feet above lake level over the western counties.

The climate varies, the influence of the Great Lakes being sufficient to greatly reduce the excessive cold of winter and the high temperatures of summer throughout the shore counties. Marked differences in temperature often occur both in summer and winter in the interior and shore counties. This influence of the lakes is very forcibly illustrated by the extensive fruit belt that extends from the southwestern limits of the State along the Lake Michigan shore to Grand Traverse Bay. This fruit belt includes the famous peach region that extends north into Oceana County. The effect of the lakes, particularly Lake Michigan, moderates the short periods of hot weather that usually occur in March, which in turn retards the early swelling of the fruit buds; likewise the lake influence moderates the late cold waves, which often occur as late as the middle of May. The general effect is to produce an even and gradual increase in temperature and counteract an excessive variability.

In latitude the limits of the State extend from $41^{\circ} 45'$ on the south to $47^{\circ} 30'$ on the north.

Temperature.—The annual mean temperature of the State, as a whole, is about 44° . Of course the annual mean temperature decreases as one travels from the southern limits of the State toward the northern. The mean temperature in the southern two tiers of counties is approximately 48° , while in the extreme northern part of the State, at Calumet and Sault Ste. Marie, the annual mean temperature is approximately 39° . The winters in the Upper Peninsula are long and cold, and snow usually covers the ground from early November until April and sometimes May.

The average summer maximum temperatures in the interior portions of the Lower Peninsula range from 85° to 90° . Along the lake shore, particularly the Lake Michigan shore, the average summer maximum temperature ranges from 80° to 85° . The extreme maximum temperature occurring during the summer rarely exceeds 100° , and periods of excessive heat are usually limited to one or two days. The highest temperature ever known to have occurred is 108° on July 15, 1901, at Marquette, Mich.

The average winter minimum temperatures range in the vicinity of zero in the Upper Peninsula and in the Lower they are about 10° above. The lowest temperatures occur in February on the high rocky elevations of Marquette and Iron counties and along the high divide in the northern part of the Lower Peninsula. The extreme winter minimum temperatures range from 25° to 40° below zero, and during the excessively cold period of February, 1899, a minimum of 49° below zero was recorded at Humboldt, Marquette County. The average extreme winter minimum temperature is about 30° below zero.

Frost.—In the Upper Peninsula it is not an infrequent occurrence to have frosts every month in the year. In the Lower Peninsula frosts of considerable severity have been known to occur in the northern counties as late as early July, but this is unusual. Over the greater portion of the agricultural counties of the Lower Peninsula the last frosts in spring usually occur about the middle of May, while the first destructive frosts of fall do not occur until during the first decade of October.

Precipitation.—The precipitation is well distributed throughout the State and throughout the year. The average for the State is 32.91 inches, which is distributed as follows: The normal in the Upper Peninsula is 34.58 inches; in the northern counties of the Lower Peninsula, 30 inches; in the central counties, 28.95 inches; and in the southern counties, 33.58 inches. The precipitation increases gradually from about 2 inches in March to a maximum of $3\frac{1}{2}$ inches in May, after which it gradually decreases during July, August, and September. The maximum precipitation in the Upper Peninsula is not reached until June. During all months of the year, except February, the average total precipitation in all sections exceeds 2 inches.

Storms.—Destructive storms that cover a large extent of territory are almost unknown. Wind storms severe enough to do general damage are very infrequent, while damage from hail and lightning is very slight during any year, and is usually confined to limited areas.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

MICHIGAN

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Alcona (see Alpena).....		Northern counties.....		Lenawee.....	Adrian.....	Southern counties.....	577
Algar (see Marquette).....		Upper Peninsula.....		Livingston (see Lansing).....		do.....	
Algonquin (see Kalamazoo).....		Southern counties.....		Lucas (see Sault Ste. Marie).....		Upper Peninsula.....	
Alpena.....	Alpena.....	Northern counties.....	564	Mackinac (see Sault Ste. Marie).....		do.....	
Antrim (see Ivan).....		do.....		Macomb (see Ball Mountain).....		Southern counties.....	
Arcona (see Grayling).....		do.....		Manistee (see Ivan).....		Northern counties.....	
Baraga (see Calumet).....	Hastings.....	Upper Peninsula.....	572	Marquette.....	Marquette.....	Upper Peninsula.....	560
Barry.....		Southern counties.....		Mason (see Ivan).....		Northern counties.....	
Bay (see Alma).....		Central counties.....		Mcosta (see Alma).....		Central counties.....	
Benzie (see Ivan).....		Northern counties.....		Menominee (see Escanaba).....		Upper Peninsula.....	
Berrien (see Kalamazoo).....		Southern counties.....		Midland (see Alma).....		Central counties.....	
Branch (see Adrian).....		do.....		Missaukee (see Ivan).....		Northern counties.....	
Calhoun (see Kalamazoo).....		do.....		Monroe (see Adrian).....		Southern counties.....	
Cass (see Kalamazoo).....		do.....		Montcalm (see Alma).....		Central counties.....	
Charlevoix (see Cheboygan).....		Northern counties.....		Montmorency (see Grayling).....		Northern counties.....	
Cheboygan.....	Cheboygan.....	do.....	563	Muskegon (see Grand Haven).....		Central counties.....	
Chippewa.....	Sault Ste. Marie.....	Upper Peninsula.....	561	Newaygo (see Grand Haven).....		do.....	
Clare (see Alma).....		Northern counties.....		Oakland.....	Ball Mountain.....	Southern counties.....	574
Clinton (see Lansing).....		Southern counties.....		Oceana (see Grand Haven).....		Central counties.....	
Crawford.....	Grayling.....	Northern counties.....	566	Ogemaw (see Grayling).....		Northern counties.....	
Delta.....	Escanaba.....	Upper Peninsula.....	562	Ontonagon (see Calumet).....		Upper Peninsula.....	
Dickinson (see Escanaba).....		do.....		Oscoda (see Ivan).....		Northern counties.....	
Easton (see Lansing).....		Southern counties.....		Oscoda (see Grayling).....		do.....	
Emmet (see Cheboygan).....		Northern counties.....		Otsego (see Grayling).....		do.....	
Genesee (see Arbuta).....		Southern counties.....		Ottawa.....	Grand Haven.....	Southern counties.....	570
Gladwin (see Alma).....		Northern counties.....		Presque Isle (see Alpena).....		Northern counties.....	
Gogebic (see Calumet).....		Upper Peninsula.....		Roscommon (see Grayling).....		do.....	
Grand Traverse (see Ivan).....		Northern counties.....		Saginaw (see Arbuta).....		Central counties.....	
Gratiot.....	Alma.....	Central counties.....	568	Sanilac (see Arbuta).....		do.....	
Hillsdale (see Adrian).....		Southern counties.....		Schoolcraft (see Sault Ste. Marie).....		Upper Peninsula.....	
Houghton.....	Calumet.....	Upper Peninsula.....	569	Shiawassee (see Lansing).....		Southern counties.....	
Huron.....	Harbor Beach.....	Central counties.....	567	St. Clair.....	Port Huron.....	do.....	571
Indian.....	Lansing.....	Southern counties.....	573	St. Joseph (see Kalamazoo).....		do.....	
Ionia (see Lansing).....		do.....		Tuscola.....	Arbuta.....	Central counties.....	569
Iosco (see Grayling).....		Northern counties.....		Van Buren (see Kalamazoo).....		Southern counties.....	
Iron (see Calumet).....		Upper Peninsula.....		Washtenaw (see Detroit).....		do.....	
Isabella (see Alma).....		Central counties.....		Wayne.....	Detroit.....	do.....	576
Jackson (see Adrian).....		Southern counties.....		Wexford (see Ivan).....		Northern counties.....	
Kalamazoo.....	Kalamazoo.....	do.....	575				
Kalkaska.....	Ivan.....	Northern counties.....	565				
Kent (see Grand Haven).....		Southern counties.....					
Keweenaw (see Calumet).....		Upper Peninsula.....					
Lake (see Ivan).....		Northern counties.....					
Lapeer (see Arbuta).....		Southern counties.....					
Leelanau (see Cheboygan).....		Northern counties.....					

STATE SUMMARY.

Station.	Number.	Temperature.										Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 50°.	Minimum below 32°.			
		° F.	° F.	° F.	° F.		° F.						
Calumet.....	1	40	46	32	97	July, 1901.....	-28	February, 1888.....	1	155			
Marquette.....	2	41	49	33	108	do.....	-27	do.....	3				
Sault Ste. Marie.....	3	41	49	31	94	July, 1894.....	-37	February, 1899.....	1	166			
Escanaba.....	4	41	48	33	96	June, 1890.....	-32	February, 1875.....	0	161			
Cheboygan.....	5	42	52	32	101	July, 1897.....	-38	February, 1905.....	4	159			
Alpena.....	6	42	50	34	98	July, 1901.....	-27	January, 1882.....	2				
Ivan.....	7	43	53	35	103	August, 1891.....	-30	February, 1899.....	7	163			
Grayling.....	8	42	54	30	101	July, 1897.....	-41	do.....	10	171			
Harbor Beach.....	9	44	54	35	101	July, 1901.....	-21	do.....	6	178			
Alma.....	10	46	56	35	100	July, 1907.....	-26	February, 1888.....	12	148			
Arbuta.....	11	46	57	36	101	do.....	-24	February, 1899.....	9	142			
Grand Haven.....	12	46	54	39	94	July, 1901.....	-25	do.....	1	127			
Port Huron.....	13	46	53	38	99	July, 1887.....	-25	February, 1885.....	4	137			
Hastings.....	14	47	57	37	100	July, 1901.....	-31	February, 1899.....	14	146			
Lansing.....	15	47	56	38	100	July, 1887.....	-17	do.....	8	131			
Ball Mountain.....	16	46	55	37	98	September, 1898.....	-18	February, 1895.....	8	138			
Kalamazoo.....	17	48	57	39	100	July, 1901.....	-19	February, 1899.....	14	129			
Detroit.....	18	48	56	41	101	July, 1887.....	-24	December, 1872.....	6	116			
Adrian.....	19	48	58	37	102	August, 1890.....	-26	January, 1892.....	13	131			

CLIMATOLOGY OF THE UNITED STATES.

STATE SUMMARY—Continued.

Station.	Num- ber.	Frost				Precipitation.				
		Average date of		Date of		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
Calumet.....	1	Oct. 8	May 11	Sept. 16	June 5	31.7	6.8	8.9	9.0	7.0
Marquette.....	2	Oct. 2	May 15	Aug. 22	June 11	32.4	7.3	9.4	9.6	6.1
Sault Ste. Marie.....	3	Sept. 24	May 16	Sept. 5	May 29	32.4	6.9	8.9	10.1	6.5
Escanaba.....	4	Oct. 1	May 14	Sept. 9	June 16	31.5	7.2	10.7	9.0	4.6
Cheboygan.....	5	Sept. 16	May 22	July 10	June 8	30.3	7.4	9.9	8.0	5.0
Alpena.....	6	Sept. 26	May 14	Sept. 6	June 9	33.7	7.4	10.1	9.9	6.3
Ivan.....	7	Sept. 14	May 23	July 11	.....do.....	32.4	7.1	2.1	9.1	7.1
Grayling.....	8	Sept. 12	May 25	.....do.....	.....do.....	28.8	6.1	8.7	7.7	6.3
Harbor Beach.....	9	Oct. 7	May 12	Sept. 18	.....do.....	26.9	6.3	8.0	7.7	4.9
Alma.....	10	Sept. 26	May 8	Sept. 11	May 26	33.2	8.1	8.9	9.7	6.5
Arbela.....	11	Sept. 11	May 13	July 17	May 28	33.2	9.2	9.7	8.1	6.2
Grand Haven.....	12	Oct. 10	Apr. 28	Sept. 23	.....do.....	35.3	8.2	9.3	9.8	7.5
Port Huron.....	13	Oct. 9	May 8	.....do.....	June 6	31.0	7.8	8.6	8.3	6.3
Hastings.....	14	Sept. 15	May 10	July 12	May 31	33.5	7.8	9.4	9.0	7.3
Lansing.....	15	Oct. 8	Apr. 25	Sept. 20	.....do.....	29.2	8.0	8.0	7.3	5.9
Ball Mountain.....	16	Oct. 1	May 9	Sept. 14	June 9	31.5	8.0	9.6	8.1	5.8
Kalamazoo.....	17	Oct. 9	Apr. 24	Sept. 20	May 13	34.8	8.5	10.1	8.8	7.4
Detroit.....	18	.....do.....	Apr. 28	Sept. 17	May 31	32.2	7.9	10.1	7.6	6.6
Adrian.....	19	Oct. 11	Apr. 27	Sept. 20	May 13	34.6	9.0	10.4	8.8	6.4

MICHIGAN.

Upper Peninsula: HOUGHTON COUNTY. Station: CALUMET.

E. S. GRIERSON, Observer.

[Established by the Signal Service in July, 1887. Latitude, 47° 13' N. Longitude, 88° 29' W. Elevation, 1,246 feet.]

This station is located within the corporation limits of the village of Calumet and its surroundings are quite open. Calumet is situated on a high ridge, which forms the backbone of Keweenaw Point, and the general topography of the country surrounding it is rugged, rocky, and quite exposed. The elevation decreases abruptly in all directions, except toward the northeast.

The thermometers are exposed in a standard window instrument shelter, attached to the northeast side of a one-and-one-half story frame building, used for office purposes. The shelter has louvered sides, double roof, and solid bottom, and is 4 feet above the ground. The rain gage is 4 feet above ground and 25 feet from the nearest building.

The observations have been taken continuously since July 1, 1887.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 21	° F. 26	° F. 49	° F. 16	° F. -14	° F. 28	° F. 15	In. 2.9	15	In. 0.6	In. 2.8	In. 33.3	In. 8.0	NW.
January.....	16	21	48	11	-14	20	6	2.6	18	1.8	1.8	36.4	8.0	W.
February.....	14	20	50	8	-28	21	8	1.5	12	1.4	1.6	20.7	7.0	W.
Winter mean.....	17	22		12				7.0	45	3.8	6.2	90.4		W.
March.....	22	28	55	15	-16	33	14	1.6	9	1.3	1.0	13.7	7.0	W.
April.....	37	44	82	30	-2	45	30	2.1	8	1.2	2.6	6.1	9.0	E.
May.....	48	56	89	40	15	54	41	3.1	10	1.9	1.2	2.2	5.0	E.
Spring mean.....	35	43		28				6.8	27	4.4	4.8	22.0		E.
June.....	59	67	92	49	29	65	54	3.3	10	5.0	3.5	0.1	1.0	W.
July.....	64	73	97	55	35	68	59	2.7	8	0.9	4.1	0.0	0.0	W.
August.....	62	70	92	54	41	67	59	2.9	9	2.0	4.8	0.0	0.0	W.
Summer mean.....	62	70		53				8.9	27	7.9	12.7	0.1		W.
September.....	55	62	90	48	28	61	52	3.5	11	1.8	12.8	0.2	1.5	W.
October.....	44	50	74	38	21	54	37	3.0	11	3.5	2.1	1.2	3.0	W.
November.....	30	41	64	25	0	40	26	2.5	13	2.2	2.0	17.5	8.0	W.
Fall mean.....	43	51		37				9.0	35	7.5	16.9	18.9		W.
Annual mean.....	39	46	97	32	-28			31.7	134	23.6	40.6	131.4	9.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	None.	Sept. 1.	1899	Feb. 9, 10.	None.
1895	Feb. 5, 6.	None.	1900	None.	Do.
1896	None.	Do.	1901	do.	June 26; July 13-15, 20.
1897	do.	July 3, 4; Sept. 4.	1902	do.	None.
1898	do.	July 17, 18.	1903	do.	July 7.

MICHIGAN.

Northern Peninsula: MARQUETTE COUNTY. Station: MARQUETTE.

H. R. PATRICK, Observer.

[Established by Signal Service May 1, 1871. Latitude, 46° 34' N. Longitude, 87° 24' W. Elevation, 668 feet.]

This station is in the center of the city, and is about 400 feet from Iron Bay on the east, and 1½ miles from the open lake on the north. A range of hills extends east and west along the southern limits of the city, and are about 1 mile from the office. The highest of these hills, Mount Mesnard, situated directly south of the station, is 520 feet above the lake level. The land north of the station is rolling for the first half mile, and from thence to the lake it is low and marshy. To the west and north-west the country is quite as hilly as that lying to the south of the station.

The dry and wet bulb and the maximum and minimum thermometers are exposed in a new standard pattern instrument shelter built in the steel tower, on the roof of the Savings Bank building, and are 75.82 feet above the ground. They are well ventilated and are about 30 feet above the highest roof of any of the surrounding buildings. The rain and snow gages are also on the roof of the office building and are about 20 feet west of the steel tower. They are 69.33 feet above the ground. The anemometer is exposed from the highest point of the steel tower, and is 48.5 feet above the roof and 115.7 feet above the ground.

The humidity, as tabulated, is from fifteen years' record, the remainder of data from the full period of observation, thirty-three years, May 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	23	59	17	-20	35	17	2.4	16	0.6	1.0	27.3	12.2	85	0.88	81	0.91	W.	
January.....	16	24	56	10	-26	27	2.0	16	1.0	1.7	25.6	13.0	86	0.89	84	0.94	NW.	
February.....	17	25	69	9	-27	33	1.7	14	0.4	2.8	19.2	17.0	85	0.76	82	0.88	NW.	
Winter mean.....	19	26	.....	12	.....	.....	6.1	46	2.0	5.5	72.1	.....	85	0.84	82	0.91	NW.
March.....	24	70	15	-16	40	14	2.0	14	0.4	3.8	21.0	14.7	82	1.01	78	1.16	NW.	
April.....	38	46	87	31	3	44	3.3	11	0.2	0.5	7.7	10.5	77	1.89	74	1.96	NW.	
May.....	49	58	98	41	22	57	3.1	12	2.5	4.5	1.7	5.3	74	2.79	71	2.89	NW.	
Spring mean.....	37	45	.....	29	.....	.....	7.3	37	3.1	8.8	30.4	.....	78	1.90	74	2.00	NW.
June.....	59	68	98	50	31	65	3.4	12	3.2	3.5	T.	T.	75	4.03	71	4.22	NW.	
July.....	65	77	108	56	38	71	3.2	12	2.4	2.5	T.	T.	74	5.01	71	4.98	NW.	
August.....	64	72	98	56	33	70	2.8	12	2.3	2.8	0.0	0.0	77	4.73	75	4.92	NW.	
Summer mean.....	63	72	.....	54	.....	.....	9.4	36	7.9	8.8	T.	.....	75	4.59	72	4.71	NW.
September.....	56	66	94	50	28	63	3.7	13	3.8	12.7	0.3	4.4	80	3.88	76	4.08	NW.	
October.....	46	54	87	39	12	56	4.0	14	6.1	3.7	4.0	4.8	82	2.70	77	2.68	NW.	
November.....	32	38	69	26	-9	41	2.7	15	2.4	3.4	18.9	15.2	84	1.63	81	1.71	W.	
Fall mean.....	45	53	.....	38	.....	.....	9.6	42	12.3	19.8	23.2	.....	82	2.74	78	2.82	NW.
Annual mean.....	41	49	108	33	-27	.....	32.4	161	25.3	42.9	125.7	17.0	80	2.52	77	2.61	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	None.....	June 14, 15; July 17-19, 27; Sept. 1, 2.	1899	Feb. 9-11.....	June 4.
1895	do.....	May 9, 29; June 1, 17; Sept. 10, 20.	1900	None.....	May 13; June 26; July 6; Aug. 4.
1896	do.....	May 7-9; July 1; Aug. 3.	1901	do.....	June 25-27; July 14, 15, 19, 20.
1897	do.....	July 3, 4, 7; Sept. 8, 9, 30.	1902	do.....	May 22; July 7, 8.
1898	do.....	June 24; July 2, 14, 17, 18; Sept. 2.	1903	do.....	July 7.

MICHIGAN.

Northern District: CHIPPEWA COUNTY. Station: SAULT STE. MARIE.

A. G. BURNS, Observer.

[Established by U. S. Signal Service July 1, 1888. Latitude, 46° 30' N. Longitude, 84° 21' W. Elevation, 667 feet.]

The first location of this station was in the First National Bank Building, corner of Ashmun street and Portage avenue, from July 1, 1888, to April 30, 1896, elevation (barometer), 642.5 feet. The second station was in the News Building, 33 Ashmun street, from May 1, 1896, to June 30, 1899; elevation, 623.7 feet. The present station is in the United States Weather Bureau Building, in the northwestern portion of the city of Sault Ste. Marie, Chippewa County, in a park known as the Canal Park, being part of the United States Government reservation. The falls of the St. Marys River are about 600 feet to the north. The Laurentian Mountains are about 5 miles north of the station and rise to a height of about 500 feet.

The instruments are exposed on the roof of the building, which is flat. The thermometers are in a standard shelter, 6 feet 10 inches above the roof and 39 feet 8 inches above the ground; the rain gage 2 feet 4 inches above the roof and 35 feet 2 inches above the ground; anemometer cups 28 feet 1 inch above the roof and 60 feet 11 inches above the ground; wind vane 26 feet 7 inches above the roof and 59 feet 5 inches above the ground.

The sunshine is from four years' record. Remainder of tabulated data is from the full period of observation, fifteen and one-half years, July 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
December.	21	27	47	15	-19	30	14	2.5	17	1.7	2.6	17.4	6.0	87	1.13	84	1.25	58	22	SE.	
January.	15	23	44	8	-28	20	6	2.4	18	1.0	4.0	19.4	12.0	89	0.76	87	0.94	75	27	NW.	
February.	14	22	46	4	-37	18	7	1.6	12	0.6	2.9	11.6	5.0	80	0.66	83	0.90	137	48	NW.	
Winter mean.	17	24	45	9	-28	22	11	6.5	47	3.3	9.5	48.4	5.7	88	0.85	85	1.03	90	32	NW.	
March.	22	31	57	14	-27	32	15	1.8	12	1.0	1.6	9.7	6.0	79	0.85	77	1.14	263	54	NW.	
April.	39	48	75	30	3	43	33	2.0	11	2.0	2.6	1.7	4.0	78	1.78	69	1.90	242	60	SE.	
May.	49	59	89	40	27	54	43	3.1	13	2.6	3.9	0.7	1.5	77	2.72	68	2.87	261	56	SE.	
Spring mean.	37	45	75	28	10	43	30	6.9	36	5.6	8.1	12.1	3.7	78	1.78	71	1.97	235	57	SE.	
June.	59	70	93	48	32	62	53	2.9	11	3.0	5.0	0.0	0.0	81	3.93	70	4.02	275	58	SE.	
July.	63	74	94	53	40	68	58	3.0	12	2.2	5.2	0.0	0.0	83	4.77	77	5.05	260	58	NW.	
August.	62	71	90	53	38	67	59	3.0	11	1.5	4.1	0.0	0.0	85	4.56	76	7.34	249	57	NW.	
Summer mean.	61	73	92	51	40	66	60	8.9	34	6.7	14.3	0.0	0.0	83	4.42	74	5.47	261	58	NW.	
September.	56	64	91	47	28	59	51	3.7	13	2.4	4.0	T.	T.	88	3.85	80	4.01	167	44	SE.	
October.	45	51	80	38	16	54	39	3.3	14	4.4	2.0	2.5	7.0	87	2.67	80	2.73	130	38	SE.	
November.	32	37	67	26	7	38	28	3.1	17	3.5	2.2	13.1	7.0	86	1.66	83	1.82	60	20	SE.	
Fall mean.	44	51	78	37	18	50	39	10.1	44	10.3	8.2	15.6	4.7	87	2.73	81	2.85	119	34	SE.	
Annual mean.	40	48	94	31	-37	43	32	32.4	161	25.9	40.1	76.1	12.0	84	2.44	78	2.83	176	45	SE.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1894	None.	June 15; July 18, 19, 27.	1900	Feb. 1.	None.
1895	Feb. 2, 5, 6.	None.	1901	None.	June 26, 27; July 1, 15.
1896	Jan. 5.	Do.	1902	.....do.	None.
1897	Feb. 26.	July 4, 7, 8; Sept. 8, 9.	1903	Feb. 17.	Do.
1898	Feb. 1.	None.			
1899	Jan. 27-29, 31; Feb. 1, 5-7, 10-14.	Do.			

MICHIGAN.

Northern Peninsula: DELTA COUNTY. Station: ESCANABA.

GEORGE B. WURTZ, Observer.

[Established by the Signal Service May 24, 1871. Discontinued as a regular station March 28, 1888. Voluntary record April, 1888, to June, 1894; January to September, 1895; and August, 1896, to October, 1898. Regular station established by the Weather Bureau November 1, 1898. Latitude, 45° 48' N. Longitude, 87° 05' W. Elevation, 594 feet.]

This station is situated in the business section of the city of Escanaba, adjacent to the water front. While the location of the office has been changed several times the exposure has been practically the same at all times and all locations were within a short distance of each other.

The thermometers have been exposed in the standard roof shelters for a considerable portion of the period, but a standard cotton region shelter was used with sod exposures during the voluntary record period. The present elevation of the thermometers is 43 feet above the ground. The rain gage was exposed on the roof of the office building during the regular observations, the building being in each instance a two-story one. The present elevation of the top of the gage is 37 feet above ground. The voluntary observations were made with the gage at a height of about 2½ feet from the ground, free from obstructions.

Tabulated data are from the following periods of observation: Temperature and precipitation only, thirty years, May 24, 1871, to June 30, 1894; January to May and July to September, 1895; and August 1, 1896, to December 31, 1903. Other data from period of regular observation, twenty-one years, May 24, 1871, to March 28, 1888, and November 1, 1898, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.		Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Relative, 8 p. m.	Average hours.	Percentage possible.		
												Average depth.	Greatest depth in 24 hours.						
December.....	22	29	54	16	-23	34	11	1.7	11	1.3	1.5	9.5	10.3	91	83	124	24	NW.	
January.....	15	23	60	7	-29	26	4	1.5	11	0.7	1.9	12.6	9.3	92	85	93	29	N.	
February.....	15	24	47	5	-32	28	0	1.4	10	0.4	2.1	10.4	4.2	94	81	112	43	N.	
Winter mean.....	17	25	.....	9	.....	.....	.....	4.6	32	2.3	5.5	32.5	.....	92	83	110	32	N.
March.....	23	33	58	14	-27	35	15	1.8	10	1.9	1.1	10.7	7.0	90	82	124	36	N.	
April.....	37	44	77	30	0	44	29	2.0	9	0.4	0.4	3.6	3.2	82	70	180	43	N.	
May.....	48	58	84	40	20	55	44	3.4	13	2.9	7.9	0.3	0.8	81	71	186	42	N.	
Spring mean.....	36	46	.....	28	.....	.....	.....	7.2	32	5.2	9.4	14.6	.....	84	74	167	40	N.
June.....	61	70	96	51	29	65	57	3.7	12	5.0	6.2	0.0	0.0	79	70	210	46	S.	
July.....	67	76	92	57	41	71	63	3.3	12	3.3	1.1	0.0	0.0	82	75	248	53	S.	
August.....	65	73	94	55	34	70	60	3.7	11	1.9	6.9	0.0	0.0	84	74	217	49	S.	
Summer mean.....	64	73	.....	54	.....	.....	.....	10.7	35	10.2	14.2	0.0	.....	82	73	225	49	S.
September.....	57	66	89	49	24	66	52	3.6	12	5.4	9.5	0.0	0.0	86	77	150	40	S.	
October.....	46	54	78	39	11	55	39	3.2	11	3.4	6.1	0.5	2.0	87	75	155	45	S.	
November.....	32	40	68	26	-15	40	24	2.2	10	0.6	3.7	5.5	5.0	87	80	60	26	NW.	
Fall mean.....	45	53	.....	38	.....	.....	.....	9.0	33	9.4	19.3	6.0	.....	87	77	122	37	S.
Annual mean.....	41	49	96	33	-32	.....	.....	31.5	132	27.1	48.4	53.1	10.3	86	77	155	39	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 90° or above.	Year.	Minimum below -20°.	Maximum 90° or above.
1899	Jan. 29, 31; Feb. 10-13.	None.	1902	None.....	None.
1900	None.....	July 6.	1903	do.....	Do.
1901	do.....	None.			

MICHIGAN.

Northern District: CHEBOYGAN COUNTY. Station: CHEBOYGAN.

HENRY ERRATT, Observer.

[Established by the Signal Service in April, 1880. Latitude, 45° 45' N. Longitude, 84° 28' W. Elevation, 611 feet.]

This station is located at the observer's residence. The country surrounding the station is quite level.

The thermometers are exposed in an instrument shelter 3 feet square and 3 feet high, supported by 4 posts. It is 4 feet above ground and 25 feet from any building. The rain gage is exposed on a post over the open lawn, 6 feet from the instrument shelter.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 24	° F. 37	° F. 53	° F. 17	° F. -18	° F. 31	° F. 18	In. 1.9	9	In. 1.4	In. 0.8	In. 11.5	In. 9.0	° SW.
January.....	18	25	51	11	-20	24	10	1.7	11	0.8	0.8	17.6	8.0	NW.
February.....	16	26	51	7	-38	21	11	1.4	8	2.0	1.4	12.9	18.0	NW.
Winter mean.....	19	29		12				5.0	28	4.2	3.0	42.0		NW.
March.....	25	33	72	15	-22	35	19	2.4	7	3.3	1.4	9.6	10.0	NW.
April.....	41	50	86	29	-2	43	35	2.0	8	0.1	3.2	2.5	5.0	NW.
May.....	51	61	88	40	17	56	45	3.0	8	2.3	1.2	0.6	3.0	NW.
Spring mean.....	39	48		28				7.4	23	5.7	5.8	12.7		NW.
June.....	61	72	95	48	28	64	57	3.2	9	2.1	4.1	0.0	0.0	NW.
July.....	66	78	101	55	33	72	61	3.4	8	2.1	7.9	0.0	0.0	NW.
August.....	64	76	94	53	35	71	61	3.3	10	4.4	7.3	0.0	0.0	NW.
Summer mean.....	64	75		52				9.9	28	8.6	19.3	0.0		NW.
September.....	58	69	95	47	25	63	54	2.9	8	0.2	8.4	T.	T.	NW.
October.....	47	61	86	39	15	57	41	2.7	8	3.3	2.3	0.7	3.0	NW.
November.....	35	40	73	27	-6	41	30	2.4	10	0.7	3.0	7.3	8.0	SW.
Fall mean.....	47	57		38				8.0	28	4.2	13.7	8.0		NW.
Annual mean.....	42	52	101	32	-38			30.3	107	22.7	41.8	62.7	18.0	NW.

° Also NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 8, 9; Feb. 24; Dec. 28.	June 15; July 27.	1899	Jan. 27, 29-31; Feb. 1, 2, 6-14.	June 4; July 23; Aug. 19, 20, 30; Sept. 2
1895	Jan. 24; Feb. 6.....	June 25.	1900	Feb. 1, 26, 27; Mar. 3, 15	Aug. 4-7, 10; Sept. 1, 11.
1896	Jan. 5; Feb. 16, 17, 20; Mar. 13.	July 2; Aug. 4.	1901	Jan. 19; Feb. 14, 15; Mar. 6.	July 1, 14-16, 20.
1897	Feb. 26, 27.....	July 3, 4, 6, 7, 9; Sept. 8, 9.	1903	Feb. 17, 18; Dec. 26...	July 8.
1898	Jan. 30; Feb. 1, 3.....	June 24; July 2, 3, 14, 17, 19; Aug. 31; Sept. 1-3.			

MICHIGAN.

Northern District: SOUTHERN PENINSULA, ALPENA COUNTY. Station: ALPENA.

FRANK JERMIN, Observer.

[Established by Signal Service in September, 1872. Latitude, 45° 05' N. Longitude, 83° 30' W. Elevation, 580 feet.]

This station is centrally located in the city of Alpena, which is in the northeastern part of the lower peninsula of Michigan, at the mouth of Thunder Bay River. There are no mountains or hills in this portion of the country that would affect the climatic conditions. However the proximity of the station to Lake Huron ameliorates somewhat the extremes in weather.

The thermometers are exposed in a standard instrument shelter on the roof of the Bolton block, 63 feet above ground. The rain gage, anemometer, and wind vane have been exposed on the roof—62 by 55 feet—since the establishment of the station; the elevation of the rain gage is 55.1 feet; the elevations of the anemometer and wind vane have been changed several times, but only a few feet, making no material change in the exposure; the height of the anemometer and wind vane are now 80 and 78 feet, respectively.

The snowfall data are from nineteen years, the humidity from fifteen years, and the remaining data are from full period, thirty-one years, September 10, 1872, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 24	° F. 30	° F. 56	° F. 19	° F. -15	° F. 34	° F. 16	In. 2.2		In. 16	In. 2.6	In. 2.3	In. 13.6	P. ct. 85	Grs. 1.33	P. ct. 83	Grs. 1.41	W.
January.....	19	26	52	12	-27	28	10	2.3		16	2.7	1.6	19.6	85	0.66	83	1.07	W.
February.....	18	26	59	10	-27	29	3	1.8		14	0.5	5.0	16.2	85	0.88	81	1.05	W.
Winter mean.....	20	27		14				6.3	46	5.8	8.9	49.4		85	1.06	82	1.18	W.
March.....	25	33	77	17	-19	36	13	1.9	13	0.3	3.0	10.8	8.0	83	1.18	78	1.32	NW.
April.....	38	47	83	31	-2	46	30	2.2	11	2.7	0.9	3.4	11.7	78	1.99	74	2.11	SE.
May.....	50	59	95	41	22	57	44	3.3	12	2.3	3.0	0.9	5.0	77	3.03	72	3.04	SE.
Spring mean.....	38	46		30				7.4	36	5.3	8.9	15.1		79	2.07	75	2.16	SE.
June.....	60	69	97	51	34	65	55	3.6	12	1.4	3.2	0.0	0.0	77	4.42	73	4.48	SE.
July.....	66	76	98	57	40	69	62	3.1	11	0.5	2.1	0.0	0.0	78	5.12	72	5.21	NW.
August.....	64	72	95	55	39	70	60	3.4	11	3.1	3.0	0.0	0.0	83	4.93	76	5.15	NW.
Summer mean.....	63	72		54				10.1	34	5.0	8.3	0.0		79	4.82	74	4.95	NW.
September.....	57	66	94	49	28	62	53	3.6	12	2.6	6.2	T.	0.5	85	4.12	79	4.39	NW.
October.....	46	54	87	39	15	55	40	3.7	14	0.8	10.2	0.9	5.7	86	2.83	79	2.90	NW.
November.....	34	40	70	28	-4	42	26	2.6	15	2.2	3.0	6.2	11.0	86	1.89	82	2.02	NW.
Fall mean.....	46	53		39				9.9	41	5.6	19.4	7.1		86	2.95	80	3.10	NW.
Annual mean.....	42	50	98	34	-27			33.7	157	21.7	45.5	71.6	16.8	82	2.72	78	2.85	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 24.....	June 15; July 19, 27; Sept. 2.	1899	Jan. 31; Feb. 7, 9-13..	June 4; Aug. 18.
1895	Feb. 2, 5-7.....	May 29-31; June 1; Sept. 20, 21.	1900	Feb. 1, 26, 27.....	May 14; June 26; July 6; Aug. 5-7, 9, 10.
1896	Feb. 17.....	May 9; Aug. 5.	1901	None.....	June 27; July 1, 17, 20; Sept. 6.
1897	None.....	July 4; Sept. 8, 9.	1902	.....do.....	July 5, 6.
1903	.....do.....	June 24; July 2, 14, 17; Aug. 31; Sept. 2, 3.	1903	.....do.....	July 8.

MICHIGAN.

Northern District: KALKASKA COUNTY. Station: IVAN.

O. L. GIDDINGS, Observer.

[Established by the Signal Service in May, 1889. Latitude, 44° 35' N. Longitude, 85° 07' W. Elevation, —.]

This station is on the northern slope of the Manistee River. The surrounding country is quite hilly and rolling.

The thermometers are exposed in a standard instrument shelter. It is in a grassy yard, 20 feet from the observer's house. The rain gage is supported on a post 5 feet high and is 20 feet from any building. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	24	30	54	18	-16	31	20	2.7	12	3.0	3.6	15.2	14.0	SW.	
January.....	20	27	47	12	-19	24	11	2.6	13	3.1	5.0	28.0	14.0	NW.	
February.....	18	27	54	10	-30	25	14	1.8	10	1.4	2.6	16.8	12.0	NW.	
Winter mean.....	21	28		13				7.1	35	7.5	11.2	60.0		NW.	
March.....	27	35	71	16	-23	36	20	2.0	10	0.9	3.1	12.5	12.0	NW.	
April.....	42	53	88	31	0	48	37	2.2	9	1.6	1.9	2.4	3.0	NW.	
May.....	53	65	94	41	14	62	49	2.9	10	4.2	3.3	1.4	6.0	NW.	
Spring mean.....	41	51		29				7.1	29	6.7	8.3	16.3		NW.	
June.....	64	77	100	50	28	70	58	3.1	10	1.5	3.8	0.0	0.0	SW.	
July.....	68	81	98	55	32	74	63	2.7	9	0.3	0.4	0.0	0.0	SW.	
August.....	65	77	103	52	33	70	61	3.3	8	2.3	4.9	0.0	0.0	SW.	
Summer mean.....	66	78		52				9.1	27	4.1	9.1	0.0		SW.	
September.....	58	70	95	47	25	63	54	3.3	10	3.5	2.1	0.1	1.0	SW.	
October.....	46	57	85	37	12	55	38	2.9	9	2.2	5.8	1.6	4.0	NW.	
November.....	33	40	88	27	4	41	30	2.9	12	2.4	2.0	13.0	6.0	NW.	
Fall mean.....	46	56		37				9.1	31	8.1	9.9	14.7		NW.	
Annual mean.....	43	53	103	33	-30			32.4	122	26.4	38.5	91.0	14.0	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Feb. 24; Dec. 28.....	June 15; July 27.	1900	Feb. 16, 26, 27.....	Aug. 5.
1895	Feb. 6; Mar. 14.....	June 10; July 16; Sept. 10.	1901	Feb. 14; Mar. 6.....	June 26, 27; July 1, 16, 20.
1896	Feb. 17.....	Aug. 5.	1902	Jan. 28; Feb. 19.....	
1897	Feb. 27.....	July 3, 4, 6, 8, 9; Sept. 9.	1903	Feb. 17.....	
1898	Feb. 1.....	July 17, 24.			
1899	Jan. 29-31; Feb. 1, 7-14; Dec. 30.	Aug. 19.			

MICHIGAN.

Northern District: CRAWFORD COUNTY. Station: GRAYLING.

OSCAR PALMER, Observer.

[Established by the Signal Service in April, 1887. Latitude, 44° 39' N. Longitude, 84° 42' W. Elevation, 1,147 feet.]

This station is located in the observer's yard, near the southwestern limits of the village of Grayling, and its surroundings are open in all respects. The country surrounding it is quite hilly, very sandy, and covered with scrubby jack-pine growth.

The thermometers are exposed in a standard instrument shelter, 4½ feet above the ground, and in a garden plat, 20 feet from the house. The rain gage is 1 foot above ground near the shelter.

Observations have been taken by Doctor Palmer since the establishment of the station in April, 1887. The record during 1887 and 1888 is broken, but since 1889 is quite complete. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 23	° F. 31	° F. 54	° F. 15	° F. -22	° F. 32	° F. 17	In. 2.3	9	In. 2.4	In. 1.4	In. 16.4	In. 8.0	SW.
January.....	17	26	50	9	-35	24	8	2.0	11	2.2	1.0	18.4	12.5	NW.
February.....	16	26	55	6	-41	26	9	2.0	8	1.4	3.4	13.3	8.0	NW.
Winter mean.....	19	28		10				6.3	28	6.0	5.8	48.1		NW.
March.....	24	34	73	13	-55	36	18	1.9	7	0.4	1.4	14.7	14.0	NW.
April.....	42	55	87	29	-2	47	37	1.5	6	0.8	1.2	4.0	6.0	NW.
May.....	54	67	98	39	10	62	50	2.7	7	2.8	2.2	1.8	7.0	NW.
Spring mean.....	40	52		27				6.1	20	4.0	4.8	20.5		NW.
June.....	64	78	100	49	27	69	57	2.8	7	0.9	3.5	0.0	0.0	NW.
July.....	68	83	101	53	28	73	62	2.8	7	0.3	6.0	0.0	0.0	NW.
August.....	64	79	97	49	29	70	58	3.1	7	2.0	2.2	0.0	0.0	NW.
Summer mean.....	65	80		50				8.7	21	3.2	11.7	0.0		NW.
September.....	58	71	94	44	19	61	53	2.8	7	3.5	5.5	0.1	2.0	NW.
October.....	46	59	87	34	7	53	38	2.4	6	2.2	2.4	3.1	6.0	NW.
November.....	34	43	74	25	-6	41	29	2.5	8	2.5	5.8	10.1	8.0	NW.
Fall mean.....	46	58		34				7.7	21	8.2	13.7	13.3		NW.
Annual mean.....	42	54	101	30	-41			28.8	90	21.4	36.0	81.9	14.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 9; Dec. 28.....	July 27.	1900	Jan. 31; Feb. 1, 17, 26-28; Mar. 12, 16; Dec. 16.	Aug. 5, 7.
1895	Feb. 6; Mar. 4.....	May 29; June 10; July 7.	1901	Jan. 3, 19; Feb. 14-16, 23, 25, 28; Mar. 6-8; Dec. 17, 18, 21.	June 26, 27; July 1, 14-16, 26.
1896	Jan. 5; Feb. 16, 17, 20; Mar. 12, 14.	May 8; July 2; Aug. 5.	1902	Jan. 28, 29; Feb. 14, 15; Dec. 14.	
1897	Jan. 13, 19, 24, 25; Mar. 16; Dec. 24, 25.	July 2-4, 6-9.	1903	Feb. 7, 17, 18; Dec. 27, 28.	
1898	Jan. 1; Feb. 1, 2; Dec. 13, 26.	June 24.			
1899	Jan. 1, 8, 27, 29-31; Feb. 1, 2, 6-15; Mar. 1; Dec. 30, 31.				

MICHIGAN.

Central District: HURON COUNTY. Station: HARBOR BEACH.

N. P. ARNOLD, Observer.

[Established by the Signal Service in June, 1887. Latitude, 43° 49' N. Longitude, 82° 37' W. Elevation, 635 feet.]

This station is situated on the Pere Marquette Railway depot grounds on an open space partially covered with grass and about 1,000 feet from the Lake Huron shore. The surrounding country is quite flat.

The instrument shelter previous to 1896 was a louvered structure 3 feet square, with solid bottom and a single roof. This was replaced in 1896 by a standard instrument shelter. The shelter is 42 inches above the ground, and the rain gage is exposed on one corner of the shelter roof, 7 feet above ground. The observations are almost continuous from June 1, 1887. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	27	34	59	20	-5	35	20	1.7	6	1.2	2.9	8.3	5.0	W.
January.....	22	30	59	15	-12	28	14	1.7	8	1.0	1.2	11.5	6.0	W.
February.....	21	29	60	13	-21	27	16	1.5	6	0.6	3.9	10.9	6.0	SW
Winter mean.....	23	31	.....	16	.....	.....	.....	4.9	20	2.8	8.0	30.7	.....	W
March.....	29	36	74	20	-10	39	23	1.7	7	1.8	1.5	5.5	4.0	N
April.....	41	50	84	32	11	44	39	1.8	6	1.4	4.1	0.4	0.5	N
May.....	52	62	93	42	21	60	48	2.8	8	2.2	4.2	0.0	0.0	N
Spring mean.....	41	49	.....	31	.....	.....	.....	6.3	21	5.4	9.8	5.9	.....	N
June.....	62	72	98	51	30	66	56	2.9	7	0.6	2.1	0.0	0.0	N.E.
July.....	68	78	101	58	35	74	63	2.2	7	2.4	2.0	0.0	0.0	N
August.....	66	76	100	56	33	72	62	2.9	8	1.6	2.2	0.0	0.0	N
Summer mean.....	65	75	.....	55	.....	.....	.....	8.0	22	4.6	6.3	0.0	.....	N
September.....	61	71	95	51	21	64	57	2.3	7	1.3	2.0	0.0	0.0	SW
October.....	50	59	88	41	18	56	44	3.0	8	2.6	5.9	0.3	0.8	SW
November.....	37	44	71	29	6	45	32	2.4	7	0.9	2.6	3.5	5.0	SW
Fall mean.....	49	58	.....	40	.....	.....	.....	7.7	22	4.8	10.5	3.8	.....	SW
Annual mean.....	44	54	101	35	-21	.....	.....	26.9	85	17.6	34.6	40.4	6.0	N

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	None.....	July 27; Aug. 7; Sept. 2.	1899	Jan. 31; Feb. 9-13....	June 4, 5; Aug. 19, 20; Sept. 7.
1895	Feb. 6.....	May 30, 31; June 2; July 6; Aug. 10; Sept. 11.	1900	Feb. 26, 27; Mar. 12....	June 26; July 4-6, 15, 26; Aug. 5-11; Sept. 11.
1896	None.....	May 8, 9; July 2, 11, 12; Aug. 4-6, 8, 10, 11.	1901	None.....	June 27, 28; July 1, 2, 20, 21, 24; Aug. 22.
1897	do.....	July 4, 5, 11; Sept. 9-11.	1902	do.....	None.
1898	Feb. 2.....	June 24; July 2, 3; Aug. 31; Sept. 1-3.	1903	do.....	July 1, 8, 9.

MICHIGAN.

Central District: GRATIOT COUNTY. Station: ALMA.

P. M. SMITH, Observer.

[Established by the Signal Service in March, 1887. Latitude, 43° 23' N. Longitude, 84° 35' W. Elevation, 750 feet.]

The station is near the center of the city. The instruments are located on the lawn of the observer's residence. The nearest tree to the instrument shelter is about 15 feet distant. The surrounding country is quite hilly, although the immediate environment of the village of Alma is almost flat. The station was established in March, 1887, and no change has been made in location of the instruments since its establishment.

All instruments are standard. The instrument shelter is a louvred structure, 42 inches above the ground. The rain gage is exposed on the lawn near the shelter. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	33	60	20	-13	36	20	2.3	8	5.6	1.5	9.0	6.0	SW.
January.....	21	29	59	14	-22	28	13	2.4	13	2.3	2.0	13.3	8.0	SW.
February.....	21	30	60	13	-26	27	14	1.8	7	0.7	2.7	12.8	8.0	SW.
Winter mean.....	23	31	.....	16	.....	.....	.....	6.5	24	8.6	6.2	34.1	.....	SW.
March.....	30	39	75	21	-11	40	23	2.5	8	1.0	1.6	9.0	5.0	SW.
April.....	45	59	88	34	7	50	41	2.3	8	1.9	2.9	1.0	1.0	NE. ^a
May.....	55	68	92	44	17	64	52	3.3	9	1.8	4.0	0.5	3.0	SW.
Spring mean.....	43	55	.....	36	.....	.....	.....	8.1	25	4.7	8.5	10.5	.....	SW.
June.....	66	78	98	53	31	71	59	3.1	9	1.0	3.0	T.	T.	SW.
July.....	70	83	100	57	35	76	64	3.0	7	0.4	2.7	0.0	0.0	SW.
August.....	67	81	98	54	35	74	64	2.8	9	3.2	7.8	0.0	0.0	SW.
Summer mean.....	68	81	.....	55	.....	.....	.....	8.9	25	4.6	13.5	T.	.....	.....
September.....	60	74	96	48	24	64	56	3.2	8	2.0	5.2	T.	T.	SW.
October.....	49	60	87	38	14	57	42	2.7	7	0.5	4.2	0.2	1.0	SW.
November.....	38	44	71	28	-6	44	32	2.8	11	4.0	0.8	7.7	12.0	SW.
Fall mean.....	49	59	.....	38	.....	.....	.....	9.7	23	6.5	10.2	7.9	.....	SW.
Annual mean.....	46	56	100	35	-26	.....	.....	33.2	97	24.4	38.4	52.5	12.0	SW.

^a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 25; Dec. 28.....	June 22; Sept. 3.	1899	Jan. 30; Feb. 6-13.....	Aug. 19.
1895	Feb. 5; Dec. 13.....	June 4; July 8.	1900	Feb. 17, 26, 27; Mar. 16.	July 5; Aug. 5-11, 17, 19.
1896	Feb. 17.....	.....	1901	Dec. 21.....	June 25, 27; July 1, 16, 17; Sept. 6.
1897	Dec. 24.....	July 3, 4, 8-10; Sept. 8, 9.	1902	.....	.....
1898	Jan. 30; Feb. 1, 3.....	July 2, 14, 15, 17, 23, 24.	1903	Feb. 17.....	.....

MICHIGAN.

Central District: TUSCOLA COUNTY. Station: ARBELA.

WILLIAM ATKIN, Observer.

[Established by the Signal Service in November, 1887. Latitude, 43° 14' N. Longitude, 84° 38' W. Elevation, 728 feet.]

This station is located near the hamlet of Arbela, in the extreme southwestern corner of the county. The country surrounding the station is quite level.

The station was first established as a rainfall station, precipitation records beginning with November, 1887. The instrument shelter, maximum and minimum thermometers were not supplied until July, 1895, and complete observations did not begin until October, 1895.

The instrument shelter is of standard type and is located on a large lawn 30 feet east of the observer's house, at least 20 feet from any trees. The rain gage is on the ground about 6 feet away from the instrument shelter.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	In.	In.			
December.....	26	33	62	18	-12	28	21	2.2	8	0.5	1.3	5.5	6.5	SW.	
January.....	23	30	54	16	-11	27	22	2.0	8	2.0	3.0	8.8	6.0	NW.	
February.....	21	29	64	13	-24	26	15	2.0	7	1.7	4.0	10.8	8.0	SW.	
Winter mean.....	23	31		16				6.2	23	4.2	8.3	25.1		SW.	
March.....	31	40	73	22	-13	39	24	2.5	7	2.5	1.6	7.0	12.0	NW.	
April.....	46	57	85	36	10	51	43	2.6	7	1.3	4.3	0.4	2.0	SW.	
May.....	58	70	89	46	23	64	54	4.1	10	2.4	6.1	0.1	1.0	SW.	
Spring mean.....	45	56		35				9.2	24	6.5	12.0	7.5		SW.	
June.....	66	78	94	53	33	68	62	3.6	9	1.4	6.2	T.	T.	SW.	
July.....	71	84	101	59	36	74	67	3.3	7	1.3	4.4	0.0	0.0	SW.	
August.....	68	80	97	55	31	73	65	2.8	6	2.7	7.8	0.0	0.0	SW.	
Summer mean.....	68	81		56				9.7	22	5.4	18.4	T.		SW.	
September.....	62	74	96	51	23	65	56	2.8	7	1.1	4.5	T.	T.	SW.	
October.....	51	62	88	39	19	57	44	2.7	6	1.7	3.0	T.	0.5	SW.	
November.....	38	46	73	29	8	47	34	2.6	8	2.5	2.0	4.7	8.0	SW.	
Fall mean.....	50	61		40				8.1	21	5.3	9.5	4.7		SW.	
Annual mean.....	46	57	101	36	-24			33.2	90	21.4	48.2	37.3	12.0	SW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Dec. 28.....	None.	1900	Feb. 27.....	Aug. 5, 7, 8, 10, 11.
1895	Feb. 5, 6.....	July and September missing.	1901	Jan. 4; Feb. 14; Dec. 21.	July 1, 20.
1896	Feb. 14.....	None.			
1897	Jan. 25.....	July 3, 4, 8-10.	1902	Feb. 5.....	None.
1898	Jan. 30.....	July 2, 17, 24; Aug. 23; Sept. 1-3.	1903	Feb. 17.....	Do.
1899	Jan. 31; Feb. 9-13; Dec. 30.	Aug. 20.			

MICHIGAN.

Southern District: OTTAWA COUNTY. Station: GRAND HAVEN.

J. E. GATFIELD, Observer.

[Established by the Signal Service on May 24, 1871. Latitude, 43° 05' N. Longitude, 86° 13' W. Elevation, 628 feet.]

This station was established by the Signal Service and observations have been taken continuously since date of establishment. The station was discontinued by the Weather Bureau June 30, 1903, since which time the records have been maintained by the wind-signal displayman.

The country surrounding is moderately level, except along the lake shore, which is marked by high sand dunes that shelter the city somewhat from the lake.

The station has always been located in the heart of the business portion of the town, the instruments being exposed on the roof of the Cutler house. The thermometers are exposed in a standard shelter and are 9 feet above the roof. The rain gage is exposed on the roof, which is 45 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Mean humidity.				Direction of prevailing wind.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.					
												Average depth.	Greatest depth in 24 hours.									
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	P. ct.	Grs.	P. ct.	Grs.								
December	29	36	61	25	-12	37	22	2.6	16	4.9	3.8	10.7	7.5	86	1.58	82	1.59	SW.				
January	24	31	61	20	-12	37	17	2.7	19	3.8	2.2	17.6	12.0	89	1.31	85	1.38	NW.				
February	25	31	59	18	-25	36	15	2.2	15	1.1	6.1	12.7	5.0	89	1.15	85	1.32	NW.				
Winter mean	26	32		20				7.5	50	9.8	12.1	41.0		88	1.35	84	1.43	NW.				
March	30	38	71	24	-5	39	24	2.3	13	0.9	3.8	8.3	9.5	84	1.56	79	1.74	NW.				
April	44	52	84	36	9	49	41	2.5	11	1.3	1.9	1.2	5.0	76	2.32	68	2.40	E.				
May	55	63	87	46	28	62	50	3.4	12	2.6	1.2	0.3	4.0	77	3.36	67	3.36	SW.				
Spring mean	43	52		36				8.2	36	4.8	6.9	9.8		79	2.41	71	2.50	e E.				
June	64	72	92	56	37	68	59	3.9	10	0.7	3.4	0.0	0.0	78	4.79	68	4.91	SW.				
July	69	76	94	61	40	74	64	2.7	8	1.7	4.8	0.0	0.0	77	5.57	64	5.44	SW.				
August	67	75	92	59	42	73	61	2.7	8	2.5	1.9	0.0	0.0	80	5.25	69	5.50	b SW.				
Summer mean	67	76		59				9.3	26	4.9	10.1	0.0		78	5.20	67	5.28	SW.				
September	60	69	92	53	30	67	55	3.6	11	2.3	6.7	T.	T.	82	4.40	70	4.44	SW.				
October	50	58	82	43	20	58	44	3.2	12	0.4	7.9	0.1	0.4	82	3.00	73	3.22	SE.				
November	37	44	72	32	0	45	32	3.0	14	3.5	4.2	7.5	8.0	82	2.02	78	2.15	NW.				
Fall mean	49	58		43				9.8	37	6.2	18.8	7.6		82	3.14	74	3.27	c SE.				
Annual mean	46	54	94	39	-25			34.8	149	25.7	47.9	58.4	12.0	82	3.03	74	3.12	SW.				
a Also SW., NW.																			b Also NW.		c Also SW., NW.	

a Also SW., NW.

b Also NW.

c Also SW., NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO JUNE 30, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	None	July 19, 26.	1899	Feb. 9-13.	July 23, 24; Aug. 28.
1895	do.	June 3.	1900	None	None.
1896	do.	None.	1901	do.	June 24; July 15, 17, 21.
1897	do.	July 3, 6-9; Sept. 14.	1902	do.	None.
1898	do.	July 24.	1903	do.	Do.

MICHIGAN.

Southern District: ST. CLAIR COUNTY. Station: PORT HURON.

W. J. OLDS, Observer.

[Established by Signal Service, August, 1874. Latitude, 43° 00' N. Longitude, 82° 25' W. Elevation, 569 feet.]

The station is situated about one-fourth of a mile from the St. Clair River and about 2 miles from the foot of Lake Huron. The surrounding country is perfectly level.

The office was located in the city hall, corner of Huron avenue and Broad street, from the date of its establishment until October 31, 1886, when it was moved to its present quarters in the Federal Building, corner of Sixth and Water streets. From November 1, 1886, to December 31, 1903, the thermometers have been exposed in a standard shelter located on the east roof of the Federal Building and at an elevation of 70 feet above ground and 10 feet above the roof. The rain gages are exposed upon the same roof with an elevation of 63 feet above ground. The anemometer and the wind vane are 120 feet above ground. The exposure of the instruments is not obstructed by surrounding buildings.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; humidity, fifteen years. Remainder of data is from the full period of observation, twenty-nine years, September 1, 1874, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
December.....	27	33	65	22	-14	37	17	2.2	15	2.8	3.0	8.5	8.0	83	1.41	79	1.53	SW.
January.....	22	29	64	18	-15	35	13	1.9	15	1.1	2.8	9.5	10.0	83	1.12	81	1.26	SW.
February.....	23	30	60	15	-25	33	10	2.2	14	1.4	2.2	10.5	12.5	83	0.98	80	1.24	S.
Winter mean.....	24	31	.....	18	.....	.....	.....	6.3	44	5.3	8.0	28.5	.....	83	1.17	80	1.34	SW.
March.....	30	36	73	23	-14	40	19	2.5	14	1.4	5.2	6.3	11.0	81	1.44	77	1.64	N.
April.....	43	51	84	35	7	50	37	2.0	11	1.8	2.3	2.8	12.4	75	2.04	70	2.31	N.
May.....	54	62	93	45	26	63	48	3.3	13	3.0	5.0	T.	0.5	71	3.10	70	3.51	N.
Spring mean.....	42	50	.....	34	.....	.....	.....	7.8	38	6.2	12.5	9.1	.....	76	2.19	72	2.49	N.
June.....	64	73	97	55	35	68	58	3.3	12	1.3	6.3	0.0	0.0	76	4.82	72	4.48	S.
July.....	69	78	99	60	42	74	65	2.7	10	2.7	1.9	0.0	0.0	77	5.58	69	5.09	N.E.
August.....	65	77	99	58	41	74	60	2.6	9	0.5	7.4	0.0	0.0	79	5.18	70	5.41	N.E.
Summer mean.....	66	76	.....	58	.....	.....	.....	8.6	31	4.5	15.6	0.0	.....	77	5.19	70	5.19	N.E.
September.....	62	70	97	53	30	69	57	2.8	10	2.1	0.9	0.0	0.0	82	4.26	73	4.62	S.
October.....	50	58	87	42	19	58	37	2.7	11	1.1	1.8	0.1	1.4	82	2.90	73	3.08	S.
November.....	37	44	69	31	-6	45	29	2.8	13	1.2	2.2	5.3	16.0	82	1.94	78	2.06	SW.
Fall mean.....	50	57	.....	42	.....	.....	.....	8.3	34	4.4	4.9	5.4	.....	82	3.03	75	3.25	S.
Annual mean.....	46	53	99	38	-25	.....	.....	31.0	147	20.4	41.0	43.0	16.0	80	2.90	74	3.07	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 24.....	June 12, 16, 22, 23, 30; July 11, 12, 19, 27; Aug. 7; Sept. 2, 3.	1899	Feb. 10-13.....	June 5, 6; Aug. 12, 18-20; Sept. 7.
1895	Feb. 5, 6.....	May 30, 31; June 1-3; July 6-8; Aug. 10; Sept. 11, 20, 21.	1900	None.....	July 4-6; Aug. 5-11; Sept. 1, 6.
1896	None.....	May 9; July 12, 13; Aug. 6.	1901	do.....	June 26, 27; July 1, 2, 24, 28; Sept. 7.
1897	do.....	July 3-5, 9, 10; Sept. 6, 8-10.	1902	do.....	July 6, 8.
1898	do.....	June 24, 30; July 3, 17; Aug. 23, 31; Sept. 1-4.	1903	do.....	July 8.

MICHIGAN.

Southern District: BARRY COUNTY. Station: HASTINGS.

JOHN BESSMER, Observer.

[Established by the Signal Service in June, 1888. Latitude, 42° 38' N. Longitude, 85° 17' W. Elevation, 770 feet.]

This station is in the residence portion of the city of Hastings, and its surroundings are more like that of an open country. The station is about half a mile from the center of the town. The town site itself is quite level, but the surrounding country is rolling and almost hilly. The station is situated on the Thornapple River, which is the principal tributary from the south to the Grand River.

The thermometers are exposed in a regulation instrument shelter, on an open lawn, 42 inches above the ground. The rain gage is exposed on a post 4 feet above the ground, just north of the shelter.

Fairly good records, extending back to October, 1879, were kept by Dr. F. R. Timmerman. These records consist of precipitation measurements and exposed thermometer readings, at 7 a. m., 2 p. m., and 9 p. m. When the station was established by the Signal Service maximum and minimum thermometers were supplied. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	35	61	20	-15	38	20	2.7	13	2.7	2.9	9.3	8.0	SW.
January.....	24	32	61	16	-21	37	14	2.4	12	1.6	2.5	11.4	7.0	SW.
February.....	23	30	60	13	-31	33	15	2.2	12	1.5	3.0	15.4	11.0	NW.
Winter mean.....	25	32		16				7.3	37	5.8	8.4	36.1		SW.
March.....	32	40	76	22	-6	41	25	1.5	11	1.4	3.2	8.9	6.5	NW.
April.....	46	57	89	35	7	52	41	2.5	10	1.5	5.8	2.0	5.0	WSW.
May.....	58	68	92	45	20	66	53	3.8	11	3.4	3.6	0.5	3.0	SW.
Spring mean.....	45	55		34				7.8	32	6.3	12.6	11.4		SW.
June.....	67	79	98	55	34	70	63	3.6	10	4.7	5.6	0.0	0.0	SW.
July.....	72	84	100	59	36	76	67	3.0	9	1.5	2.3	0.0	0.0	SW.
August.....	69	81	97	56	37	74	66	2.8	7	0.1	0.4	0.0	0.0	SW.
Summer mean.....	69	81		57				9.4	26	6.3	8.3	0.0		SW.
September.....	62	73	95	49	25	70	58	3.2	10	1.6	3.4	T.	T.	SW.
October.....	50	60	90	39	18	59	43	2.8	9	1.0	4.4	T.	0.2	SW.
November.....	37	45	72	29	2	45	33	3.0	12	2.4	3.5	8.1	10.5	SW.
Fall mean.....	50	59		36				9.0	31	5.0	11.3	8.1		SW.
Annual mean.....	47	57	100	37	-31			33.5	126	23.4	40.6	55.6	11.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1895	Feb. 5	None.	1899	Jan. 1; Feb. 1, 6-14	July 24; Aug. 19; Sept. 7.
1896	Jan. 5	None.	1900	Feb. 17, 23	Aug. 5, 19, 20.
1897	Jan. 25; Dec. 24	July 3, 4, 8-10; Sept. 9.	1901	Feb. 15; Dec. 21	June 12, 24, 25; July 1-4, 10, 16, 17, 20-22.
1898	Jan. 23-31	July 2, 15, 17, 23, 24; Aug. 23, 31; Sept. 1-3.	1902	Feb. 14	None.
			1903	Feb. 17	None.

MICHIGAN.

Southern District: INGHAM COUNTY. Station: LANSING.

STATE BOARD OF HEALTH, Observer.

[Established by the Signal Service in June, 1887. Latitude, 42° 44' N. Longitude, 84° 32' W. Elevation, 881 feet.]

This station is at present located on the capitol lawn, about 150 feet southwest of the capitol building. From 1887 to 1891 it was maintained as a regular station of the Signal Service. From August, 1891, to January 1, 1895, the State board of health's records have been used. The Weather Bureau maintained a regular station at Lansing from January 1, 1895, until June 15, 1903, since which time the records of the State board of health have been used.

The city of Lansing is situated mostly on the western bank of the Grand River. The city itself is quite flat, and the country surrounding it somewhat rolling.

The instruments are exposed in an instrument shelter having louvered sides, solid bottom, and double roof. The shelter is nearly 5 feet high, the bottom of the shelter being 3 feet above ground. The rain gage is supported on an iron post, the top of the gage being 3 feet above ground and located about 20 feet east of the shelter.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	In.			
December.....	28	34	62	21	- 7	37	21	1.8	14	4.3	2.1	7.7	6.0	SW.
January.....	23	30	63	16	-14	31	13	2.1	14	2.7	1.9	10.5	7.6	SW.
February.....	22	29	61	15	-17	31	15	2.0	12	0.5	3.6	11.2	10.4	SW.
Winter mean.....	24	31		17				5.9	40	7.5	7.6	29.4		SW.
March.....	32	40	74	24	3	40	24	2.4	12	1.1	1.4	7.6	6.0	NW
April.....	46	56	83	37	16	51	43	2.4	11	1.0	4.7	1.7	6.4	NW
May.....	57	67	91	47	25	65	53	3.2	13	1.4	2.1	0.3	3.4	SW.
Spring mean.....	45	54		36				8.0	36	3.5	8.2	9.6		NW
June.....	67	77	96	57	37	71	62	2.8	11	1.0	4.2	0.0	0.0	SW.
July.....	71	82	100	60	43	76	66	2.7	9	1.5	4.8	0.0	0.0	SW.
August.....	68	79	96	57	39	74	65	2.5	9	5.1	5.7	0.0	0.0	SW.
Summer mean.....	69	79		58				8.0	29	7.6	14.7	0.0		SW.
September.....	61	72	94	51	27	66	55	2.6	10	0.6	3.9	0.0	0.0	SW.
October.....	50	59	87	40	20	58	44	2.2	10	0.8	2.0	T.	0.2	SW.
November.....	37	44	72	30	4	45	32	2.5	12	3.6	1.4	5.2	8.0	SW.
Fall mean.....	49	58		40				7.3	32	5.0	7.3	5.2		SW.
Annual mean.....	47	56	100	38	-17			29.2	137	23.6	37.8	44.2	10.4	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	None.	July 19.	1899	Feb. 9-13.	None.
1895	Feb. 5, 7.	None.	1900	None.	Do.
1896	Feb. 17.	Do.	1901	do.	Do.
1897	Jan. 25.	July 4, 8-10.	1902	do.	Do.
1898	None.	July 24.	1903	do.	Do.

MICHIGAN.

Southern District: OAKLAND COUNTY. Station: BALL MOUNTAIN.

F. N. HILTON, Observer.

[Established by the Signal Service in May, 1889. Latitude, 42° 35' N. Longitude, 83° 16' W. Elevation, 932 feet.]

This station is on the observer's farm, 5 miles southwest of Pontiac. The country surrounding the station is quite hilly and dotted with numerous small lakes. The elevation of the hills in this vicinity range from 50 to 200 feet in height. The instruments are located on a grassy knoll 50 feet east of the house, and the rain gage is on a 6-foot post near the shelter, 32 feet from the nearest tree.

The instrument shelter is a standard affair, with louvered sides, solid bottom, and double roof, 3 feet square, with door facing the north. The bottom of the shelter is 42 inches above the sod.

The observations have been taken continuously since May, 1889. The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	26	33	61	20	- 9	35	20	2.2	10	3.0	1.8	7.4	8.5	SW.	
January.....	22	30	59	15	-17	30	12	1.6	9	1.2	0.4	9.6	6.0	SW.	
February.....	22	29	60	16	-18	29	15	2.0	9	0.7	0.7	11.4	18.0	NW.	
Winter mean.....	23	31	.....	17	.....	.....	.....	5.8	28	4.9	2.9	28.4	.....	SW.
March.....	30	38	74	21	-14	40	24	2.0	10	3.5	1.8	8.0	6.0	NW.	
April.....	45	54	88	35	7	49	42	2.3	8	0.5	1.7	0.8	1.5	SW.	
May.....	56	71	92	45	19	63	52	3.7	9	2.3	5.9	0.2	3.0	SW.	
Spring mean.....	44	54	.....	34	.....	.....	.....	8.0	27	6.3	9.4	9.0	.....	SW.
June.....	66	77	94	55	31	69	60	3.8	11	1.5	10.4	0.0	0.0	SW.	
July.....	70	81	97	59	37	75	64	3.0	8	2.4	8.6	0.0	0.0	SW.	
August.....	68	78	97	58	42	74	64	2.8	6	0.1	1.2	0.0	0.0	SW.	
Summer mean.....	68	79	.....	57	.....	.....	.....	9.6	25	4.0	20.2	0.0	.....	SW.
September.....	62	72	98	51	28	66	57	2.9	7	3.3	6.5	0.0	0.0	SW.	
October.....	50	59	87	40	16	58	42	2.6	7	3.6	2.8	T.	0.3	SW.	
November.....	36	43	71	29	2	43	33	2.6	9	2.8	2.6	4.2	4.0	SW.	
Fall mean.....	49	58	.....	40	.....	.....	.....	8.1	25	9.7	11.9	4.2	.....	SW.
Annual mean.....	46	55	98	37	-18	.....	.....	31.5	105	24.9	44.4	41.6	18.0	SW.

a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1895	Feb. 5.....	None.	1900	Feb. 27.....	Aug. 5, 8, 10, 11.
1896	Jan. 4; Feb. 16.....	Do	1901	None.....	July 1, 2.
1897	Jan. 25.....	July 4, 9, 10.	1902	do.....	
1898		July 24; Aug. 23; Sept. 1-3.	1903	do.....	
1899	Jan. 29; Feb. 9-13.....	Aug. 19, 20; Sept. 7.			

MICHIGAN.

Southern District: KALAMAZOO COUNTY. Station: KALAMAZOO.

C. J. SEELEY, Observer.

[Established by the Kalamazoo Asylum in January, 1876. Latitude, 42° 17' N. Longitude, 85° 35' W. Elevation, 955 feet.]

This station is situated on the grounds of the Kalamazoo Asylum for the Insane, which is in the western limits of the city of Kalamazoo, and its surroundings are like those of the open country. The station has been continuously maintained through cooperation with the authorities of the asylum since 1887, previous to which the asylum took its observations and filed them for the State board of health.

The thermometers are exposed in a standard instrument shelter on a large lawn, 30 feet from any building. The rain gage is on a post 3 feet high, near the shelter.

The record of observations at this station is complete, with but few exceptions, from January 1, 1876.

The monthly mean temperatures were computed from tridaily readings until 1887; from 1887 to December 31, 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	27	35	63	23	-11	38	17	2.8	13	3.0	2.5	10.2	8.0	SW.
January.....	24	33	79	19	-15	36	16	2.3	12	1.3	1.9	14.8	9.0	SW.
February.....	24	31	58	16	-19	35	12	2.3	11	2.7	0.1	13.0	12.0	W.
Winter mean.....	25	33		19				7.4	36	7.0	4.5	38.0		SW.
March.....	33	41	60	24	-6	43	23	2.6	10	1.9	7.3	5.3	6.0	NW.
April.....	47	58	87	38	6	54	42	2.5	10	0.4	3.9	1.8	10.0	W.
May.....	58	66	93	46	8	65	53	3.4	12	2.2	2.1	0.3	2.0	W.
Spring mean.....	46	55		36				8.5	32	4.5	13.3	7.4		W.
June.....	68	78	95	58	36	72	63	4.2	11	2.2	5.7	0.0	0.0	SW.
July.....	72	83	100	62	43	78	67	3.3	8	3.3	6.5	0.0	0.0	SW.
August.....	70	81	100	60	42	77	64	2.6	8	1.3	4.2	0.0	0.0	SW.
Summer mean.....	70	81		60				10.1	27	6.8	16.4	0.0		SW.
September.....	63	74	96	54	30	70	57	3.1	8	0.1	2.6	0.0	0.0	SW.
October.....	51	61	83	42	24	60	45	2.8	9	3.0	5.3	T.	0.2	SW.
November.....	38	46	71	31	6	44	30	2.9	12	0.3	5.8	6.1	10.0	SW.
Fall mean.....	51	60		42				8.8	29	3.4	12.7	6.1		SW.
Annual mean.....	48	57	100	39	-19			34.8	124	21.7	47.9	51.5	12.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1895	Jan. 12; Feb. 7.....	None.	1900		None.
1896	None.....	Aug. 5, 8.	1901	Dec. 21.....	June 13, 25, 26; July 1-4, 10, 16, 17, 25-27;
1897	Jan. 25, 26.....	July 4, 5, 8-11; Aug. 23; Sept. 10, 11, 14-16			Aug. 3.
1898	None.....	July 15, 24; Aug. 19; Sept. 2.	1902		July 8
1899	Jan. 31; Feb. 9-13.....	July 23, 24; Aug. 5 10; Sept. 7.	1903	Feb. 17, 18.....	None.

MICHIGAN.

Southern District: WAYNE COUNTY. Station: DETROIT.

N. B. CONGER, Inspector.

[Established by the Signal Service November 1, 1870. Latitude, 42° 20' N. Longitude, 83° 3' W. Elevation, 594 feet.]

The office was first located in the Michigan Exchange Hotel, Wayne and Jefferson streets, and was removed in 1871 to the Buhl Block, corner of Griswold and Congress streets; in 1881 it was removed to the Board of Trade Building, corner of Griswold and Jefferson streets, and in 1889 was removed to the Hammond Building, corner of Griswold and Fort streets, and in 1896 it was removed to the present quarters in the Union Trust Building, northeast corner of Griswold and Congress streets.

During this entire period the office has been in practically the same locality, there being no move of over six blocks and always within six blocks of the river and a short distance from the Campus Martius.

The instrument shelter is supported inside of the steel tower for wind instruments, 153 feet above ground and about 12 feet above the tiled roof. The rain gages have always been located on the roof. The present exposure is about the middle portion of the roof, slightly sheltered by skylights, 147 feet above ground. The record of wind velocity was, on account of unsuitable exposure, too low until the removal of the office to the Board of Trade Building in 1881. Since that date, in the two latter removals, the instruments have been increased in elevation above ground, and at present they are located on a 50-foot tower on the roof of the building 193 feet above ground. The record of velocity has been increased about 10 per cent since the location of the instruments on the tower and much more satisfactory results obtained.

Tabulated data are from the following periods of observation: All maximum and minimum temperature data, thirty-one years, 1873-1903; sunshine from thirteen years, 1891-1903; humidity, fifteen years, 1889-1903; remainder of data is from the full period of observation, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	° F. 29	° F. 35	° F. 65	° F. 24	° F. -24	° F. 41	° F. 18	In. 2.4	14	In. 3.1	In. 1.2	In. 7.6	In. 10.6	P.ct. 84	Gr.s. 1.49	P.ct. 80	Gr.s. 1.62	87	31	SW	
January.....	24	31	66	18	-16	37	15	1.9	14	1.5	2.8	11.1	14.8	85	1.20	81	1.31	106	36	SW	
February.....	25	32	64	19	-20	39	12	2.3	13	0.8	1.5	8.9	14.0	84	1.09	78	1.27	125	42	SW	
Winter mean.....	26	33	.....	20	.....	.....	.....	6.6	41	5.4	5.5	27.6	.....	84	1.26	80	1.40	106	26	SW
March.....	33	40	75	26	-7	41	26	2.4	13	1.2	2.8	4.0	12.5	81	1.50	73	1.66	180	48	W.	
April.....	46	55	85	38	8	53	38	2.2	11	1.1	6.2	2.0	24.1	74	2.35	66	2.51	213	53	NE.	
May.....	58	67	95	49	28	65	53	3.3	12	4.4	4.9	T.	0.5	74	3.59	65	3.73	263	57	SW	
Spring mean.....	46	54	.....	38	.....	.....	.....	7.9	36	6.7	13.9	6.0	.....	76	2.48	68	2.63	219	53	SW
June.....	67	76	96	58	38	72	63	3.9	11	3.3	4.4	0.0	0.0	75	4.92	66	5.10	300	66	SW	
July.....	72	81	101	63	48	77	67	3.5	10	1.5	5.7	0.0	0.0	75	5.64	62	5.62	322	70	SW	
August.....	70	79	99	61	45	76	67	2.7	9	0.2	5.5	0.0	0.0	77	5.40	64	5.44	281	65	SW	
Summer mean.....	70	79	.....	61	.....	.....	.....	10.1	30	5.0	15.6	0.0	.....	75	5.32	64	5.39	301	67	SW
September.....	63	72	97	55	30	72	58	2.6	9	0.6	4.3	0.0	0.0	80	4.44	68	4.61	240	64	SW	
October.....	52	60	88	44	22	60	45	2.4	10	1.0	5.4	T.	3.5	81	2.97	70	3.06	195	57	SW	
November.....	38	45	71	32	0	47	30	2.6	12	2.4	3.0	2.9	6.0	82	2.02	76	2.16	108	■	SW	
Fall mean.....	51	59	.....	44	.....	.....	.....	7.6	31	4.0	12.7	2.9	.....	81	3.14	71	3.28	181	52	SW
Annual mean.....	48	56	101	41	-24	.....	.....	32.2	138	21.1	47.7	36.5	24.1	79	3.05	71	3.17	202	52	SW

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 24.....	June 11, 12, 22, 23, 29, 30; July 11, 12, 17-19, 27; Aug. 7, 8; Sept. 2.	1899	None.....	June 22; July 4; Aug. 19, 20; Sept. 7.
1895	None.....	May 5, 10, 30, 31; June 1-3; July 8, 16, 19; Aug. 30, 17; Sept. 11, 20-22.	1900	.....do.....	July 4, 5, 15; Aug. 5-11; Sept. 6.
1896	.....do.....	May 9; July 13; Aug. 5, 9.	1901	.....do.....	June 30; July 1, 2, 4, 10, 16, 18, 21, 24, 27, 28.
1897	Jan. 25.....	July 3-5; Sept. 9, 10.	1902	.....do.....	July 4-6.
1898	None.....	June 24, 30; July 1-3, 15, 17, 24; Aug. 23, 30, 31; Sept. 1-3.	1903	.....do.....	July 25.

MICHIGAN.

Southern District: LENAWE COUNTY. Station: ADRIAN.

B. F. GIBBS, Observer.

Established by Prof. W. H. Howard, of Adrian College, in January, 1878. Latitude, 41° 53' N. Longitude, 84° 1' W. Elevation, 770 feet.

This station is located on a level sodded plat in the residence district of the city of Adrian, where the houses are from 50 to 100 feet apart. The country surrounding Adrian is moderately rolling.

From 1878 to 1887 the only instruments were an exposed thermometer and a rain gage. Beginning with 1888 a standard instrument shelter 3 feet square, with solid bottom, together with maximum and minimum thermometers, was installed. The rain gage is exposed on a 3-foot post over an open grass plat 6 feet north of the shelter. The height of the thermometers above ground is 4 feet and 4 inches.

Previous to 1888 the mean daily temperature was obtained by the old Smithsonian formula: The sum of the readings at 7 and 2 and twice the reading at 9 divided by 4. Since 1888 the mean temperature has been deduced from the maximum and minimum temperature readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	27	35	64	21	-16	38	19	2.3	10	2.9	6.6	7.1	6.0	SW.
January.....	24	21	66	16	-26	37	14	1.9	8	2.1	1.8	7.6	4.0	SW.
February.....	23	31	64	15	-20	34	10	2.2	8	1.3	5.7	7.2	15.0	SW.
Winter mean.....	25	32		17				6.4	26	6.3	14.1	21.9		SW.
March.....	33	43	80	24	-7	42	23	2.3	10	2.4	3.5	5.6	7.0	SW.
April.....	47	59	88	36	17	54	41	2.5	9	1.3	2.4	0.4	2.0	SW.
May.....	58	69	97	43	22	66	52	4.2	11	2.5	2.0	T.	T.	SW.
Spring mean.....	46	57		34				9.0	30	6.2	7.9	6.0		SW.
June.....	68	80	100	56	34	72	63	4.2	9	2.2	8.9	0.0	0.0	SW.
July.....	72	86	101	59	42	77	66	3.6	8	1.8	5.0	0.0	0.0	SW.
August.....	69	83	102	57	38	75	64	2.6	7	2.0	2.4	0.0	0.0	SW.
Summer mean.....	70	83		57				10.4	24	6.0	16.3	0.0		SW.
September.....	63	76	100	50	27	69	57	3.1	8	1.0	6.1	0.0	0.0	SW.
October.....	54	62	90	39	15	58	45	2.5	8	3.5	10.7	T.	T.	SW.
November.....	37	45	76	30	-5	46	27	3.2	10	1.9	8.9	2.2	1.5	SW.
Fall mean.....	51	61		40				8.8	26	6.4	25.7	2.2		SW.
Annual mean.....	48	58	102	37	-26			34.6	10.6	24.9	64.0	30.1	15.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1901.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	None	June 22, 23.	1897	Jan. 25, 26	July 3, 4, 8-10; Sept. 9, 13, 15.
1895	Feb. 15; Dec. 13	May 5, 29-31; June 1-3, 10, 11, 25; July 5, 6, 8, 16, 17, 19, 20; Aug. 9, 10, 15-17; Sept. 10-12, 19-22.	1898	None	July 15, 24; Aug. 23; Sept. 2, 3.
		July 12; Aug. 8, 9.	1899	Jan. 31; Feb. 9-13	July 24; Aug. 19.
1896	Jan. 5; Feb. 17; Dec. 24.		1900	None	
			1901	Feb. 15, 28; Dec. 21	July 1, 10, 21, 25, 26; Aug. 9, 14.

NEBRASKA.

By GEORGE A. LOVELAND,
Section Director.

NEBRASKA.

The State of Nebraska lies between the fortieth and forty-third parallels of north latitude and the ninety-fifth and one hundred and fourth meridians of west longitude.

It is situated near the geographical center of the United States proper, and is a typical portion of the Great Plains. Measured in miles, the State is 208 miles from north to south and 440 from east to west. It includes within its boundaries 77,000 square miles, or 49,000,000 acres.

The location of Nebraska at a distance from all large bodies of water, with a high mountain range along its western border, together with the latitude and elevation, are the important factors determining the climate. The nearest large bodies of water—those supplying most of the moisture to the air—are the Gulf of Mexico, 800 miles to the southward, and the Great Lakes, 500 miles to the eastward.

The physical configurations of the surface of the ground within the State are such as to have little effect upon the climate. The surface is one large expanse of rolling prairie, becoming more broken in the extreme northwestern portion by canyons, ridges, and buttes, while mountainous conditions are approached along the western border, where the State nearly touches the Rocky Mountains.

A wide area of central Nebraska, about 24,000 square miles, is occupied by wind-blown sands, constituting the great sand-hill district. The lakes are few and small in area, while the trees are largely confined to the valleys along streams, with no extensive forests.

The lowest point of Nebraska is the water level of the Missouri River at the southeastern corner of the State, the altitude of which is 810 feet. The ascent is very gradual northward along the eastern border, being but a foot or so to the mile, while westward the ascent is slightly steeper and nearly uniform. The grade is 6 feet per mile for the first 100 miles, 7 feet for the second 100, 8 feet for the third, 10 feet for the fourth, and 18 to 20 feet for the last 40 miles. The general surface elevation is about 1,000 feet along the eastern border and exceeds 4,000 feet in the northwestern part of the State, the top of the highest butte ranging from 4,600 to 5,300 feet above sea level.

Three main river systems cross the State, flowing mainly eastward from the Rocky Mountains to the Missouri River on the eastern border. They are the Niobrara in the north, the Platte in the center, and the Republican in the south part of the State.

Temperature.—The average annual temperature varies with the latitude and elevation. It is 52° in the southeastern portion of the State and 2° less on the western border in the same latitude, but somewhat more than 2,000 feet higher. The mean annual temperature decreases northward at an average rate of 1° for 35 miles, or to 46° along the northern border. January is the coldest month, with a mean temperature approximately 27° below the yearly average, or with a range of from 25° in the southeast to 20° or slightly below in the north. In the coldest days of winter the temperature usually falls to between 10° and 20° below zero. In the northwestern portion of the State 40° below zero or more has been recorded twice in the past twenty years, the coldest recorded being 47° below zero at Camp Clark on February 12, 1899.

July is the warmest month, with a mean approximately 26° above the yearly mean, or with a range of from 78° in the southeast to 72° in the northwest. In the hottest days of summer the temperature exceeds 100°. In 1901, taken as a whole the hottest July recorded, the highest temperature was from 108° to 110°, while in 1894, 114° was recorded at Creighton and Santee on July 26.

Frost.—The last killing frost in spring, on the average, occurs in the last decade in April in the southeastern part of the State, but occurs gradually later to the northward and westward, occurring near May 1 in the greater portion of the agricultural section of the State, while in the northwest in the more elevated grazing districts the season is about two weeks later.

The first killing frost in the fall occurs as a rule in the South Platte district, except the western portion, during the first week in October, and from five to ten days earlier in the central and northwestern portion of the State.

The average number of days without killing frost—that is, from the last killing frost of spring to the first in the fall—is one hundred and fifty-five to one hundred and sixty-five in the southeastern part of the State, one hundred and forty-five to one hundred and fifty in the central, northeastern, and southwestern parts, and one hundred and thirty to one hundred and thirty-five in the northwestern portion.

The ground usually thaws out and some plowing and seeding is done in March, but the real growing season does not begin until the higher temperatures of April are felt.

The following table gives the mean temperatures for the State by month and year for the past twenty-seven years. The temperature records available are not sufficiently numerous in the earlier years to allow the computation of State means.

MONTHLY AND ANNUAL TEMPERATURES FOR NEBRASKA.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1876	24.6	29.7	26.6	49.8	61.1	70.1	75.9	73.5	60.8	48.2	31.7	19.6	47.6
1877	18.7	34.2	32.8	40.2	57.8	66.3	75.2	72.8	65.6	46.4	32.8	32.8	48.5
1878	25.5	34.0	44.1	51.4	54.8	66.3	75.5	74.4	60.1	48.3	39.4	19.2	49.4
1879	20.9	22.6	40.1	51.6	63.0	70.0	75.2	72.9	61.0	54.2	35.4	15.7	48.6
1880	31.9	28.3	32.8	48.7	63.3	69.0	73.4	73.2	61.4	46.7	23.2	16.9	47.4
1881	10.8	18.2	30.3	45.6	64.7	72.9	75.8	78.8	62.4	51.1	33.5	32.5	48.0
1882	21.1	32.5	39.2	48.7	54.6	69.0	70.8	73.4	65.8	54.7	35.5	22.8	49.2
1883	11.2	17.2	33.6	49.7	55.4	68.4	74.0	71.3	59.2	46.0	37.1	25.6	45.7
1884	17.3	17.5	33.6	42.6	58.6	71.8	74.7	70.3	66.0	54.8	36.7	14.4	46.5
1885	12.6	18.0	35.6	49.1	58.1	68.6	75.1	69.8	63.6	48.6	38.8	31.1	47.4
1886	9.9	27.2	30.5	47.6	64.3	69.4	75.2	75.4	64.3	54.5	32.3	20.7	47.6
1887	15.2	18.2	37.8	51.1	63.6	72.0	75.6	70.9	63.2	45.2	35.7	21.9	47.5
1888	10.9	28.4	27.6	52.0	54.6	70.1	77.7	70.2	63.4	47.7	35.1	30.8	47.3
1889	22.4	23.4	40.4	51.4	58.3	68.7	73.4	72.9	59.3	51.5	32.9	36.1	49.3
1890	16.3	25.2	34.0	51.0	58.4	72.4	78.8	71.7	62.5	50.1	38.9	32.5	49.3
1891	27.5	17.6	26.9	51.2	59.4	66.0	70.1	70.6	66.8	50.7	34.2	31.3	47.7
1892	18.8	28.1	33.3	45.7	51.7	68.4	75.0	73.2	65.7	53.0	36.6	23.3	47.7
1893	23.0	21.4	31.6	45.4	56.6	71.7	75.7	70.3	64.7	50.0	34.5	27.6	47.6
1894	19.4	19.1	38.2	52.0	62.7	71.4	76.4	75.8	64.6	52.4	38.0	29.9	50.0
1895	19.0	20.2	35.9	54.8	60.9	67.6	72.7	73.0	68.0	48.1	34.8	28.1	48.6
1896	28.4	32.7	30.5	51.9	63.6	70.7	74.3	73.3	59.8	47.9	26.1	34.0	49.4
1897	21.8	27.2	34.2	47.8	61.3	69.5	75.9	70.8	70.6	53.5	34.9	22.9	49.1
1898	27.0	30.6	35.0	48.0	57.2	70.4	74.0	74.2	63.6	46.9	31.4	23.5	48.5
1899	23.0	12.1	26.8	49.0	59.6	70.0	73.4	73.8	64.4	53.0	43.4	25.5	47.8
1900	30.2	20.8	36.2	51.5	63.8	72.5	74.4	77.2	64.5	56.7	35.5	31.9	51.3
1901	26.7	21.4	35.7	48.9	60.5	70.7	82.0	75.2	62.4	54.0	39.5	25.0	50.1
1902	24.8	23.6	39.2	49.2	63.3	66.4	72.4	71.9	59.6	53.6	38.7	21.2	48.6
1903	27.0	19.2	35.8	49.4	58.4	64.5	73.0	70.5	60.6	53.4	37.0	28.4	48.1
Normals	20.9	23.9	34.2	49.3	59.6	69.5	74.8	72.9	63.4	50.8	35.1	25.9	48.4

Precipitation.—The precipitation of Nebraska is mostly in the form of rain. The snowfall for the year averages about 20 inches, equal to about 2 inches of water, or less than one-tenth the annual precipitation.

The moisture comes largely from the Gulf of Mexico, brought by the prevailing southerly winds of summer. There is very little rain or snowfall during the winter months, averaging less than an inch a month from November to February, inclusive. A slight increase is manifest in March, but the spring rains begin in April, when from 2 to 3 inches is the normal rainfall for most parts of the State. In May the rainfall is about 1 inch more than in April, while June and July follow with about the same amount. June, however, is the month of heaviest rainfall, with an amount ranging from more than 5 inches in the southeast to slightly less than 3 in the extreme west. August brings a decided decrease, with only about the same as April, while September and October have still less. The rainy season thus coincides with the crop season or the warm growing months. Nearly 70 per cent of Nebraska's precipitation occurs in the five months April to August, inclusive.

The annual precipitation slightly exceeds 30 inches in the southeastern part of the State and decreases to the north and west somewhat irregularly, but at an average rate of 1 inch for 30 miles across the State from the southeast corner to the middle of the western border, where it is only 15 inches. The decrease northward along the eastern border is about 1 inch for 40 miles, or to 27 inches in the northeast corner. The decrease is 1 inch for 50 miles along the northern border, or to 18 inches in the northwest corner.

The following table gives the average precipitation for the State as a whole as complete as the preserved records will allow:

This average has been determined by the use of a limited number of stations in the early years, but it is believed they are fairly accurate. For 1849 to 1869 one to six stations were used; from 1870 to 1875, eight to twelve stations. After 1876 the number of stations was adequate for a reliable State mean.

MONTHLY AND ANNUAL PRECIPITATION FOR NEBRASKA.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1849	(a)	(a)	5.94	7.70	14.39	3.92	6.70	5.26	0.25	1.78	0.10	0.10	.....
1850	0.46	0.06	1.04	1.05	3.86	9.73	4.68	1.44	0.40	0.26	1.52	0.29	24.79
1851	1.12	0.89	0.14	0.72	12.64	3.43	2.49	2.42	2.44	0.51	0.97	0.73	28.50
1852	0.12	0.23	0.27	0.72	7.01	2.96	2.34	1.60	2.04	1.34	2.17	0.70	21.50
1853	T.	0.02	0.08	5.98	11.34	2.42	7.20	1.92	0.88	0.26	0.97	0.08	31.15
1854	0.22	1.22	1.81	2.51	5.56	5.29	3.05	1.03	4.32	1.06	0.73	T.	26.80
1855	0.97	0.23	1.31	0.67	6.58	2.16	3.39	4.08	(a)	0.18	2.06	1.42	(a)
1856	0.26	0.48	0.62	3.37	4.26	4.56	4.43	1.86	1.80	5.45	0.39	1.30	28.78
1857	1.03	T.	0.12	1.19	2.09	1.40	4.38	5.83	2.10	4.03	1.85	0.37	24.39
1858	1.50	0.46	4.85	3.96	3.93	4.35	9.64	1.47	1.81	3.38	0.30	0.22	35.87
1859	0.48	0.72	1.72	1.07	4.22	1.68	1.52	1.62	1.58	0.63	0.60	0.21	16.05
1860	0.80	0.65	0.02	0.68	1.06	3.04	2.47	1.03	2.46	0.74	0.71	1.58	15.24
1861	1.38	1.34	0.14	0.61	4.16	3.14	1.68	2.72	4.16	0.91	0.68	0.68	21.60
1862	1.40	0.40	2.47	1.72	2.04	1.95	5.07	2.00	3.36	0.06	0.53	0.28	21.28
1863	0.39	0.67	0.14	(a)	1.57	2.07	1.84	1.40	1.19	0.57	1.05	1.66	(a)
1864	0.33	(a)	1.61	1.92	1.07	2.01	0.61	1.10	0.76	2.41	0.99	0.26	(a)
1865	0.16	4.49	1.44	3.86	1.73	3.69	3.08	(a)	0.89	1.88	(a)	1.57	(a)
1866	1.11	0.44	1.32	2.16	1.63	4.15	1.78	1.64	3.99	0.24	0.94	0.97	20.37
1867	1.38	2.70	1.63	1.92	6.11	2.59	3.42	0.75	1.22	0.42	0.02	0.39	22.55
1868	0.35	1.21	1.34	1.84	6.47	2.48	1.66	2.57	1.48	0.80	0.71	2.06	24.97
1869	0.50	1.64	0.41	1.72	3.16	4.86	4.88	4.72	4.90	0.86	0.76	1.87	24.28
1870	0.53	0.21	1.14	1.96	3.92	1.25	1.63	2.25	5.90	1.14	0.22	0.56	20.71
1871	0.66	1.03	0.40	2.04	3.31	2.99	7.13	1.94	1.42	0.60	2.70	0.76	24.98
1872	0.10	0.56	1.20	2.14	4.13	3.06	4.65	1.64	1.95	1.90	0.40	0.42	22.15

^a Data insufficient to compute State mean.

MONTHLY AND ANNUAL PRECIPITATION FOR NEBRASKA—Continued.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual.
1873.	0.90	0.30	0.27	2.69	5.84	3.38	2.75	1.62	1.00	0.87	0.36	0.69	20.67
1874.	0.38	1.34	1.14	1.09	2.63	5.34	1.68	1.36	4.03	1.43	0.67	0.61	21.70
1875.	0.68	1.22	1.35	3.04	3.29	4.45	6.64	4.96	2.35	0.87	1.00	0.71	30.56
1876.	0.20	0.55	1.85	1.45	2.54	1.99	4.28	3.25	3.63	0.98	1.68	0.24	22.64
1877.	0.98	0.31	0.76	2.86	5.79	3.50	1.45	2.04	2.06	2.92	0.82	1.85	25.24
1878.	0.44	0.31	1.95	1.85	4.09	5.19	5.71	2.16	1.90	0.39	0.64	0.44	25.07
1879.	0.80	0.80	0.70	2.61	3.43	4.27	5.92	1.54	1.40	1.03	1.31	0.58	24.39
1880.	0.38	0.18	0.50	0.72	2.11	4.44	3.36	3.87	2.74	1.78	0.53	0.62	21.23
1881.	0.91	1.64	1.51	2.02	6.28	5.36	3.38	1.18	3.77	3.42	0.87	0.57	30.91
1882.	0.56	0.63	0.15	3.58	4.93	4.34	3.40	1.31	0.92	2.23	0.45	1.01	23.51
1883.	1.04	0.92	0.50	2.79	5.39	7.18	2.81	3.21	2.04	3.58	0.24	1.04	30.74
1884.	0.46	0.69	1.96	2.60	3.06	2.04	5.79	2.97	1.66	1.71	0.16	0.90	24.00
1885.	0.51	0.84	0.46	3.30	3.73	3.66	4.32	3.48	1.76	1.80	1.18	0.94	25.98
1886.	1.21	0.84	2.01	2.64	3.39	2.96	1.84	3.22	2.69	0.86	1.24	0.81	23.71
1887.	0.49	0.78	0.39	2.32	2.27	3.22	3.10	4.13	4.09	0.88	0.61	0.71	22.99
1888.	0.47	0.74	2.13	2.39	5.83	3.11	3.10	3.11	0.38	0.93	0.22	0.45	22.86
1889.	0.91	0.29	1.06	2.33	2.69	3.55	5.77	2.40	1.48	0.93	0.86	0.37	22.64
1890.	0.78	0.36	0.84	1.97	2.34	3.63	2.10	2.24	0.99	0.93	0.87	0.13	17.18
1891.	1.43	1.13	1.86	3.14	2.90	7.07	5.48	2.92	1.28	1.96	0.32	1.13	30.62
1892.	0.86	0.99	1.62	4.00	5.63	2.18	2.57	3.20	0.48	1.71	0.27	0.61	24.12
1893.	0.13	0.84	1.32	1.25	2.66	3.10	2.62	2.33	1.02	0.31	0.33	0.89	16.80
1894.	0.60	0.58	0.90	1.97	0.91	3.19	1.43	0.74	1.21	1.21	0.13	0.43	13.30
1895.	0.36	0.80	0.72	2.28	2.40	4.67	1.73	3.04	1.39	0.22	0.94	0.15	18.70
1896.	0.37	0.16	1.45	4.82	4.03	4.04	3.87	1.81	2.37	1.83	1.21	0.23	26.19
1897.	0.79	0.59	1.49	3.82	1.66	3.60	2.57	2.60	1.26	3.34	0.51	1.31	23.54
1898.	0.67	0.43	0.61	2.14	4.86	3.54	2.12	2.24	2.30	0.90	0.57	0.32	20.70
1899.	0.24	0.61	0.92	0.99	3.71	3.83	2.87	3.26	0.46	1.00	0.88	0.84	19.51
1900.	0.07	1.07	0.62	4.68	2.32	2.50	4.54	3.46	2.66	2.08	0.15	0.31	24.46
1901.	0.17	0.83	1.90	2.32	1.86	4.54	1.59	2.25	4.55	1.64	0.50	0.60	22.76
1902.	0.64	0.39	1.18	1.07	4.14	5.12	5.93	3.25	3.54	1.92	0.52	1.40	29.09
1903.	0.22	1.42	0.72	1.80	7.27	2.21	4.94	5.05	1.52	1.25	0.77	0.10	27.27
Normals.	0.60	0.70	1.15	2.49	3.65	3.86	3.52	2.72	1.98	1.56	0.68	0.68	23.59

Cloudiness.—The average annual cloudiness for the State is 45 per cent, with a maximum in May of 54 per cent and a minimum of 37 per cent in September. The cloudy months are March, April, and May with slightly more than 50 per cent, while next to September the months with a small amount of cloudiness are August, October, and November, each with but slightly more than 40 per cent of cloudiness. The eastern portion of the State has more clouds than the western, an excess of about 12 per cent in the spring, or cloudy months, and about 4 per cent more in the fall or relatively clear months.

Wind.—The average hourly wind velocity is about 10 miles for an anemometer exposed at an elevation of about 50 feet. This is true generally for the State west of the immediate valley of the Missouri River.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (<i>see</i> Hebron).		Southeastern.		Jefferson (<i>see</i> Hebron).		Southeastern.	
Antelope.	Oakdale.	Northeastern.	587	Johnson (<i>see</i> Auburn).		do.	
Banner (<i>see</i> Kimball).		Northwestern.		Kearney (<i>see</i> Beaver City).		do.	
Blaine (<i>see</i> Ansley).		do.		Keith (<i>see</i> Imperial).		Southwestern.	
Boone (<i>see</i> Oakdale).		Northeastern.		Keyapaha (<i>see</i> Lynch).		Northwestern.	
Boxbutte (<i>see</i> Hay Springs).		Northwestern.		Kimball.	Kimball.	Southwestern.	589
Boyd.	Lynch.	Northeastern.	586	Knox (<i>see</i> Lynch).		Northeastern.	
Brown (<i>see</i> Valentine).		Northwestern.		Lancaster.	Lincoln.	Southeastern.	598
Buffalo (<i>see</i> Ansley).		Southeastern.		Lincoln.	North Platte.	Southwestern.	560
Burt.	Tekamah.	Northeastern.	588	Logan (<i>see</i> North Platte).		do.	
Butler.	David City.	Southeastern.	593	Loup (<i>see</i> Ansley).		Northeastern.	
Cass (<i>see</i> Lincoln).		do.		McPherson (<i>see</i> North Platte).		Southwestern.	
Cedar (<i>see</i> Oakdale).		Northeastern.		Madison (<i>see</i> Oakdale).		Northeastern.	
Chase.	Imperial.	Southwestern.	595	Merrick (<i>see</i> Genoa).		Southeastern.	
Cherry.	Valentine.	Northwestern.	585	Nance.	Genoa.	do.	592
Cheyenne (<i>see</i> Kimball).		Southwestern.		Nemaha.	Auburn.	do.	599
Clay (<i>see</i> Hebron).		Southeastern.		Nuckolls (<i>see</i> Hebron).		do.	
Collax (<i>see</i> David City).		Northeastern.		Otoe (<i>see</i> Lincoln).		do.	
Cuming (<i>see</i> Tekamah).		do.		Pawnee (<i>see</i> Auburn).		do.	
Custer.	Ansley.	Southwestern.	591	Perkins (<i>see</i> Imperial).		Southwestern.	
Dakota (<i>see</i> Sioux City, Iowa).		Northeastern.		Pelphs (<i>see</i> Beaver City).		Southeastern.	
Dawes (<i>see</i> Hay Springs).		Northwestern.		Pierce (<i>see</i> Oakdale).		Northeastern.	
Dawson (<i>see</i> Ansley).		Southwestern.		Platte (<i>see</i> Genoa).		do.	
Deuel (<i>see</i> Kimball).		do.		Polk (<i>see</i> Genoa).		Southeastern.	
Dixon (<i>see</i> Sioux City, Iowa).		Northeastern.		Redwillow (<i>see</i> Beaver City).		Southwestern.	
Dodge (<i>see</i> Omaha).		do.		Richardson (<i>see</i> Auburn).		Southeastern.	
Douglas.	Omaha.	do.	594	Rock (<i>see</i> Lynch).		Northeastern.	
Dundy (<i>see</i> Imperial).		Southwestern.		Saline (<i>see</i> Lincoln).		Southeastern.	
Fillmore (<i>see</i> Hebron).		Southeastern.		Sarpy (<i>see</i> Omaha).		do.	
Franklin (<i>see</i> Beaver City).		do.		Saunders (<i>see</i> Omaha).		do.	
Frontier (<i>see</i> Beaver City).		Southwestern.		Scotts Bluff (<i>see</i> Kimball).		Northwestern.	
Furnas.	Beaver City.	do.	596	Seward (<i>see</i> Lincoln).		Southeastern.	
Gage (<i>see</i> Lincoln).		Southeastern.		Sheridan.	Hay Springs.	Northwestern.	584
Garfield (<i>see</i> Oakdale).		Northeastern.		Sherman (<i>see</i> Ansley).		Southeastern.	
Gosper (<i>see</i> Beaver City).		Southwestern.		Sioux (<i>see</i> Hay Springs).		Southwestern.	
Grant (<i>see</i> Hay Springs).		Northwestern.		Stanton (<i>see</i> Oakdale).		Northeastern.	
Greeley (<i>see</i> Ansley).		Northeastern.		Thayer.	Hebron.	Southeastern.	597
Hall (<i>see</i> Genoa).		Southeastern.		Thomas (<i>see</i> Valentine).		Northwestern.	
Hamilton (<i>see</i> Genoa).		do.		Thurston (<i>see</i> Tekamah).		Northeastern.	
Harlan (<i>see</i> Beaver City).		do.		Valley (<i>see</i> Ansley).		do.	
Hayes (<i>see</i> Imperial).		Southwestern.		Washington (<i>see</i> Tekamah).		do.	
Hitchcock (<i>see</i> Imperial).		do.		Wayne (<i>see</i> Tekamah).		do.	
Holt (<i>see</i> Lynch).		Northeastern.		Webster (<i>see</i> Hebron).		Southeastern.	
Hooker (<i>see</i> Valentine).		Northwestern.		Wheeler (<i>see</i> Oakdale).		Northeastern.	
Howard (<i>see</i> Genoa).		Southeastern.		York (<i>see</i> David City).		Southeastern.	

NORTH CENTRAL DISTRICTS.

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STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with		
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Hay Springs.....	1	45	59	32	105	July, 1905.....	-38	December, 1901.....	25	171
Valentine.....	2	47	59	34	106	July, 1902.....	-28	January, 1894.....	25	119
Lynch.....	3	48	63	34	110	July, 1894.....	-33	February, 1899.....	33	157
Oakdale.....	4	47	59	35	110	do.....	-40	January, 1892.....	26	160
Tekamah.....	5	50	62	36	108	do.....	-36	do.....	32	148
Kimball.....	6	48	62	33	106	July, 1890.....	-33	January, 1888.....	33	168
North Platte.....	7	48	61	36	107	July, 1877.....	-25	February, 1899.....	25	105
Ansley.....	8	49	63	33	109	July, 1890.....	-42	January, 1892.....	41	173
Genoa.....	9	48	60	38	109	July, 1894.....	-35	do.....	25	142
David City.....	10	48	60	38	106	July, 1901.....	-30	February, 1899.....	20	132
Omaha.....	11	50	60	41	106	July, 1894.....	-32	January, 1884.....	20	122
Imperial.....	12	50	65	33	108	July, 1897.....	-35	February, 1899.....	51	158
Beaver City.....	13	52	67	37	110	July, 1901.....	-35	do.....	33	154
Hebron.....	14	51	64	40	108	do.....	-34	February, 1890.....	38	140
Lincoln.....	15	50	61	40	106	do.....	-29	January, 1892.....	28	129
Auburn.....	16	52	64	40	109	do.....	-35	do.....	46	132

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Hay Springs.....	1	Sept. 21	May 16	Sept. 6	June 21	Inches. 19.5	Inches. 6.9	Inches. 7.8	Inches. 2.6	Inches. 2.2
Valentine.....	2	Sept. 16	May 9	Sept. 12	do.....	19.3	6.2	8.8	2.5	1.8
Lynch.....	3	Sept. 24	May 3	do.....	May 26	23.1	7.0	10.8	3.9	1.3
Oakdale.....	4	Sept. 22	May 1	Sept. 11	May 24	24.1	8.0	10.7	3.7	1.7
Tekamah.....	5	Sept. 27	Apr. 26	Sept. 13	May 22	32.0	9.0	14.8	5.6	2.6
Kimball.....	6	Sept. 18	May 15	Sept. 5	June 5	14.9	5.3	5.9	1.8	1.9
North Platte.....	7	Sept. 20	May 9	Sept. 10	May 23	18.0	5.7	8.2	2.7	1.4
Ansley.....	8	do.....	May 8	Sept. 5	May 28	23.0	7.3	10.3	3.6	1.8
Genoa.....	9	Sept. 24	May 3	Sept. 2	May 27	27.7	8.4	11.4	5.6	2.3
David City.....	10	Oct. 5	Apr. 17	Sept. 12	May 5	28.8	9.5	11.8	5.2	2.3
Omaha.....	11	Oct. 12	Apr. 15	Sept. 18	May 19	30.8	8.8	13.3	6.4	2.3
Imperial.....	12	Sept. 28	May 4	Sept. 7	May 26	19.2	6.2	8.6	2.4	2.0
Beaver City.....	13	Sept. 29	May 5	Sept. 12	do.....	21.3	6.5	10.0	3.5	1.3
Hebron.....	14	Sept. 30	Apr. 30	do.....	do.....	28.9	8.7	12.5	5.5	2.2
Lincoln.....	15	Oct. 8	Apr. 18	do.....	May 7	27.7	8.4	11.9	5.0	2.4
Auburn.....	16	Sept. 26	Apr. 23	Sept. 13	May 12	35.7	11.8	14.0	6.9	3.0

NEBRASKA.

Northwestern District: SHERIDAN COUNTY. Station: HAY SPRINGS.

C. A. WATERMAN, Observer.

[Established January, 1886. Latitude, 42° 40' N. Longitude, 102° 38' W. Elevation, 3,821 feet.]

This station is located near the eastern limits of the village, in what is practically an open prairie country. The instruments are on the north side of a shallow valley about 35 feet above the bottom, the ground falling about 100 feet in half a mile.

The instrument shelter and rain gage stand about 50 feet south of a one-story house, and about the same distance north of a one-story house. They are about 40 feet east of two or three small trees. The thermometers are exposed in a standard shelter furnished by the Weather Bureau, and are 5 feet above the sod. The top of the rain gage is 2 feet 10 inches above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1886, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	Average depth.	Great-est depth in 24 hours.
December.....	25	37	64	14	-38	43	18	0.7	3	0.1	T.	In.	In.
January.....	20	32	67	9	-34	30	9	0.7	4	0.7	0.5	6.8	11.0
February.....	21	32	66	9	-32	31	8	0.8	5	0.7	1.2	8.0	12.0
Winter mean.....	22	34		11				2.2	12	1.5	1.7	21.8	
March.....	30	42	78	19	-21	37	20	1.6	7	1.7	0.9	13.0	15.0
April.....	45	59	87	32	-5	50	39	2.1	7	2.9	2.2	4.5	6.0
May.....	55	69	93	42	21	61	49	3.2	7	1.2	3.9	1.1	8.0
Spring mean.....	44	57		31				6.9	21	5.8	7.0	18.6	
June.....	64	78	103	50	33	70	60	3.2	8	1.9	2.2	0.0	0.0
July.....	71	86	105	57	37	76	66	2.7	6	1.2	8.9	0.0	0.0
August.....	70	85	102	55	34	75	65	1.9	6	0.4	2.2	0.0	0.0
Summer mean.....	68	83		54				7.8	20	3.5	13.3	0.0	
September.....	59	75	101	44	22	67	54	0.9	3	0.8	1.9	0.7	6.0
October.....	47	63	90	33	2	51	40	1.1	3	0.6	1.0	1.0	4.0
November.....	33	46	78	20	-26	42	26	0.6	3	0.8	0.2	5.2	10.0
Fall mean.....	46	61		32				2.6	9	2.2	3.1	6.9	
Annual mean.....	45	59	105	32	-38			19.5	62	13.0	25.1	47.3	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 6, 9, 23, 24, Feb. 20.	July 9-11, 16, 17, 21, 23-26, 29, 30; Aug. 8, 16, 17, 21, 27.	1899	Feb. 3-7, 11, 12.	June 11, 18, 19, 29, 30; July 4, 10, 11, 20-22, 25; Aug. 27, 29; Sept. 1, 3.
1895	Feb. 1, 6, 7; Mar. 15.	July 4, 5, 15, 17, 25-28; Aug. 1, 3, 12, 13, 15, 17, 20, 21, 25; Sept. 9, 13, 16-18.	1900	Feb. 15.	June 30; July 31; Aug. 1, 2, 6-10; Sept. 3.
1896	November and December missing.	July 1, 10-13; Aug. 2, 7, 14, 20 (8 days missing).	1901	Jan. 9; Dec. 14.	July 3, 4, 7, 8, 10-14, 19-22, 28, 31; Aug. 1, 2, 4.
1897	None.	July 6-8, 12, 15, 16, 28; Aug. 25, 31; Sept. 7.	1902	Jan. 26, 27.	June 10 (9 days missing); July 15, 24, 29; Aug. 1, 2, 16; Sept. 7.
1898	Dec. 9.	June 22, 28; July 5, 22, 23, 26; Aug. 19-22, 27, 29; Sept. 1.	1903	Feb. 15.	July 25.

NEBRASKA.

Northern District: CHERRY COUNTY. Station: VALENTINE.

J. J. O'DONNELL, Observer.

[Established April, 1885, by Signal Service. Latitude, 42° 50' N. Longitude, 100° 32' W. Elevation, 2,581 feet.]

Valentine is located about 4 miles from the north bank of Niobrara River, and three-fourths of a mile south of Minnehadua Creek. The surrounding country is entirely open prairie; that to north of the town being a raised plateau terminating in bluffs about 150 feet high, which mark the northern bank of Minnehadua Creek; east and west the prairie stretches unbroken, while to the southward the south bank of Niobrara River limits the horizon view. The location of the office has been changed many times.

The thermometers and thermograph are exposed in the standard roof shelter, the floor of which is 11.4 feet above the brown painted metal covered roof of the building, and 46.4 feet above the ground. The top of the rain gage is 3.1 feet above the roof and 36.2 feet above the ground. The anemometer cups are 18 feet above the roof, and 53.5 feet above the ground. The wind vane is 19 feet above the roof and 54.5 feet above the ground. The sunshine recorder is fixed to the roof of the instrument shelter. The roof instruments are all freely exposed on the roof of the highest building and not in any way affected by deflected air currents.

The tabulated data are from following periods of observations:

Temperature and precipitation.—Fifteen years, except January and February, fourteen years. *Snowfall*, November, December, fifteen years; January, February, fourteen years; March, thirteen years; April to October, eleven years.

Humidity.—January to March, twelve years; April to October, ten years; November and December, thirteen years.

Number of days with maximum above 90° and minimum below 32°: Nine years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P.ct.	Grs.	P.ct.	Grs.	
December.....	27	38	68	15	-34	36	19	0.5	6	T.	0.4	4.8	6.4	80	0.99	70	1.35	NW.
January.....	22	34	68	10	-38	30	11	0.6	6	1.1	0.6	5.5	3.7	81	0.73	69	0.98	NW.
February.....	21	32	68	9	-37	32	9	0.7	7	0.5	1.6	7.0	8.8	82	0.81	74	1.05	NW.
Winter mean.....	23	33	.....	11	.....	.....	1.8	19	1.6	2.6	17.3	.....	.....	81	0.84	71	1.13	NW.
March.....	32	43	84	20	-26	44	22	1.4	10	1.1	2.6	8.6	8.6	81	1.31	62	1.70	N.
April.....	47	60	91	28	0	53	42	2.6	10	2.0	3.1	5.3	5.8	78	2.57	51	2.31	N.
May.....	57	69	97	45	23	63	48	2.2	10	0.2	1.3	1.1	12.7	75	3.51	47	2.29	N.
Spring mean.....	45	57	.....	31	.....	.....	6.2	30	3.3	7.0	15.0	.....	.....	78	2.46	53	2.10	N.
June.....	67	78	102	55	32	71	63	3.3	11	2.4	6.4	0.0	0.0	77	4.42	50	4.12	S.
July.....	73	86	106	60	41	79	68	3.0	10	1.0	4.3	0.0	0.0	76	5.15	46	4.88	S.
August.....	71	84	103	58	36	75	67	2.5	10	0.3	4.7	0.0	0.0	79	4.69	50	5.14	S.
Summer mean.....	70	83	.....	58	.....	.....	8.8	31	3.7	15.4	0.0	.....	.....	77	4.75	49	4.71	S.
September.....	62	76	101	48	21	70	58	1.1	6	0.4	0.4	0.8	1.0	77	3.14	48	3.59	S.
October.....	50	64	94	36	6	54	46	0.8	4	1.0	1.6	T.	0.3	73	1.93	52	2.44	NW.
November.....	34	45	78	21	-18	39	19	0.6	6	0.2	0.8	5.0	15.9	69	1.28	59	1.62	NW.
Fall mean.....	49	62	.....	35	.....	.....	2.5	16	1.6	2.8	5.8	.....	.....	73	2.12	53	2.55	NW.
Annual mean.....	47	59	106	34	-38	.....	19.3	96	10.2	27.8	38.1	15.9	.....	77	2.54	56	2.62	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 6, 23, 24; Dec. 27.	May 14, 15; June 12; July 10, 11, 17, 22, 23, 25, 26, 29; Aug. 7-9, 18, 22, 28; Sept. 27.	1899	Feb. 4-6, 8, 9, 11, 12; Dec. 14.	June 17, 18, 29; July 5, 9, 11, 19-22, 25; Aug. 9, 10, 27; Sept. 1.
1895	Feb. 7.	May 8; July 4, 5, 15, 17, 25-28; Aug. 7-9, 12, 13, 21; Sept. 2, 9, 10, 13, 16, 19.	1900	Feb. 15.	May 11; June 20, 25, 28, 30; July 12, 30; Aug. 1, 3, 18; Sept. 7.
1896	None.	July 11-14; Aug. 10, 20.	1901	Feb. 9; Dec. 13, 14.	June 23, 25; July 3, 7, 8, 11, 14, 17, 19, 24, 28, 31; Aug. 1, 16, 24, 27.
1897	Jan. 26.	July 1, 7, 8, 29; Aug. 24, 25, 28, 31; Sept. 2, 3, 5-7.	1902	Jan. 26, 27; Feb. 2, 4.	June 9, 10; July 15, 29; Aug. 1; Sept. 7.
1908	None.	June 22, 28; July 23, 26; Aug. 19, 21, 27, 29, 31; Sept. 1, 2.	1903	None.	July 6, 7, 26, 27; Aug. 20, 21.

NEBRASKA.

Northeastern District: BOYD COUNTY. Station: LYNCH.

S. W. LIGHTNER, Observer.

[Established April, 1893. Latitude, 42° 51' N. Longitude, 98° 24' W. Elevation, 1,965 feet.]

This station is near the northern limits of the village of Lynch, and its surroundings are similar to the open country. The station is in the Ponca Valley, about 20 feet above the creek level. The bluffs are about 200 feet above the creek level; the rise is gradual; the highest bluff does not exceed 400 feet.

The thermometers are exposed in a standard shelter, set on posts, about 2 feet above the ground.

The rain gage is located 26 feet from the house, which is a story and a half in height. The top of the gage is 2 feet 10 inches above the sod.

Until April 1, 1899, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; after that time from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	24	36	65	10	-33	31	16	0.5	3	T.	0.3	4.1	7.0
January.....	21	38	68	10	-32	29	12	0.3	3	0.5	0.1	2.9	5.0
February.....	20	32	66	6	-33	29	10	0.5	4	0.2	1.8	4.9	10.0
Winter mean.....	22	35		9				1.3	10	0.7	2.2	11.9	
March.....	32	49	81	21	-11	37	22	1.0	6	0.7	0.7	3.2	3.0
April.....	50	67	98	35	8	57	44	3.1	7	2.6	1.2	1.2	3.2
May.....	61	77	100	47	26	65	56	2.9	8	0.4	7.3	0.0	0.0
Spring mean.....	48	64		34				7.0	21	3.7	9.2	4.4	
June.....	70	83	103	54	31	74	65	3.7	9	1.4	3.1	0.0	0.0
July.....	75	88	110	61	44	79	72	4.0	8	2.1	7.3	0.0	0.0
August.....	73	87	104	59	35	77	69	3.1	7	1.4	3.7	0.0	0.0
Summer mean.....	72	86		58				10.8	24	4.9	14.1	0.0	
September.....	63	76	105	46	18	72	60	2.1	5	1.2	2.0	0.0	0.0
October.....	51	72	93	38	1	57	44	1.2	4	2.0	1.3	0.5	2.0
November.....	33	51	81	23	-15	44	19	0.6	3	0.1	1.0	3.4	9.2
Fall mean.....	49	66		36				3.9	12	3.3	4.3	3.9	
Annual mean.....	48	63	110	34	-33			23.0	67	12.6	29.8	20.2	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 7, 23, 24.	May 14, 15; June 17, 27, 29, 30; July 2, 10, 11, 17, 18, 22-27, 29, 31; Aug. 6-10, 13, 22, 23, 27-29, 31; Sept. 1, 2.	1899	Feb. 4-9, 11, 12.	Apr. 24, 25, 27; May 11, 27; June 17, 18; July 20-22, 24, 25, 31; Aug. 28.
1895	Jan. 28; Feb. 1, 7, 8.	July 15, 16, 25, 26, 28; Aug. 1, 8, 13, 16, 26; Sept. 9, 10, 13, 14, 17, 19.	1900	None.	May 11; June 20, 25, 26, 30; July 1, 12, 13, 31; Aug. 1-4, 9, 10, 18-20, 22; Sept. 8.
1896	None.	July 2, 11, 12, 14; Aug. 3, 4, 7, 10, 28, 29; Sept. 1.	1901	Feb. 10; Dec. 14, 15, 19.	May 1; June 23-26; July 3, 4, 8, 10-15, 17, 19-25; Aug. 1, 16, 20, 24, 28; Sept. 3.
1897	do.	June 12, 13, 16, 22; July 1, 2, 6-8; Aug. 28; Sept. 2-7.	1902	Jan. 26, 27; Feb. 3, 4; Dec. 26.	Apr. 20; June 3, 10, 11, 14; July 11, 13; Aug. 3, 5.
1898	do.	June 17, 28; July 22; Aug. 22, 30, 31; Sept. 1, 2.	1903	Feb. 17.	June 18; July 20, 25-27; Aug. 21; Sept. 21, 22, 25.

NEBRASKA.

Northeastern District: ANTELOPE COUNTY. Station: OAKDALE.

G. S. CLINGMAN, Observer.

[Established January, 1888. Latitude, 42° 04' N. Longitude, 97° 57' W. Elevation, 1,722 feet.]

This station is located in the village of Oakdale, upon the higher level of the Elkhorn Valley, about 1 mile south of the river, and one-sixth of a mile north of the first hills upon the south side of the valley. The thermometers are exposed in a shelter of standard Weather Bureau pattern, attached to the north side of a wooden building, with free air space all around. The height of the thermometers above the sod is 4 feet 6 inches.

The rain gage is a standard one, and is situated in an open space in the garden, distant more than twice the height of any building, tree, or other object in the vicinity. The top of the gage is 2 feet 10 inches above the sod.

The entire record has been kept under practically identical conditions.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	25	36	68	15	-29	33	16	0.6	5	0.9	0.1	4.1	5.5
January.....	19	30	64	9	-40	28	5	0.5	5	0.5	0.1	3.7	6.3
February.....	19	31	74	8	-33	29	9	0.6	5	0.3	0.8	5.3	15.5
Winter mean.....	21	32		11				1.7	15	1.7	1.0	13.1	
March.....	31	42	87	20	-23	38	22	1.1	8	0.6	1.5	4.3	6.0
April.....	50	62	92	37	13	56	45	3.1	8	2.6	2.2	1.0	5.5
May.....	59	71	97	47	25	64	51	3.8	10	1.1	9.6	T.	T.
Spring mean.....	47	58		35				8.0	26	4.3	13.3	5.3	
June.....	69	81	106	56	36	73	65	4.4	10	1.1	4.3	0.0	0.0
July.....	74	87	110	61	38	82	68	3.6	8	0.8	8.1	0.0	0.0
August.....	72	85	105	59	34	77	68	2.7	8	0.9	5.0	0.0	0.0
Summer mean.....	71	84		59				10.7	26	2.8	17.4	0.0	
September.....	62	77	102	49	20	71	57	1.8	6	0.9	1.6	0.0	0.0
October.....	50	63	90	36	7	56	45	1.3	5	1.7	2.1	0.5	5.0
November.....	33	44	78	22	-15	42	21	0.6	4	0.1	0.7	2.3	6.0
Fall mean.....	48	61		36				3.7	15	2.7	4.4	2.8	
Annual mean.....	47	59	110	35	-40			24.1	82	11.5	36.1	21.0	15.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. and Feb. missing.	May 14, 15; June 20, 26, 27, 29, 30; July 2, 10, 11, 17, 18, 22-27, 29-31; Aug. 6-10, 13, 23, 28, 29, 31.	1899	Feb. 3-12.	June 18, 19; July 20, 25; Aug. 9, 10, 19, 28, 29; Sept. 4-6.
1895	Feb. 7, 8.	May 8, 27; June 24; July 17, 25, 26, 28; Aug. 8, 22, 26; Sept. 10, 13, 14, 17-19.	1900	Feb. 15.	June 6, 26; July 1, 3, 9, 12, 13, 22, 31; Aug. 1-3, 6, 7, 9, 10, 18, 20; Sept. 8.
1896	None.	July 2, 14; Aug. 3, 4, 7.	1901	Dec. 13-15.	June 24-26, 30; July 3, 4, 8-17, 19-28, 31; Aug. 1, 16, 20, 27, 28.
1897	do.	June 22; July 7, 8, 29, 31; Aug. 1; Sept. 4, 5.	1902	Jan. 27, 30; Feb. 2, 4.	June 14.
1898	do.	June 17, 22-24, 30; July 1, 18, 22-24, 26; Aug. 15, 19-22, 30, 31; Sept. 1, 2.	1903	None.	July 25.

NEBRASKA.

Northeastern District: BURT COUNTY. Station: TEKAMAH.

A. D. NESBIT, Observer.

[Established in January, 1888. Latitude, 41° 47' N. Longitude, 96° 8' W. Elevation, 1,060 feet.]

This station is in the southeastern part of the city, about 4 blocks west of the east side. The station is on level land, about 1,000 feet from the foot of the slope to the west, which rises to an elevation of 165 feet. The level land, or valley, extends eastward 6 miles to the Missouri River.

The thermometers are exposed in a standard shelter, 50 feet southeast of the residence and 3½ feet above the sod.

The rain gage is 50 feet southeast of a two-story house and 20 feet from the branches of a cherry tree 15 feet in height. The top of the gage is 8 feet above the ground.

Until January 1, 1892, monthly mean temperatures were computed from observations at 7 a. m., 2 p. m., and 9 p. m.; after that time from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	26	35	62	14	-22	32	20	1.1	4	2.8	0.3	7.3	8.0
January.....	23	33	63	11	-36	30	12	0.7	4	1.5	T.	5.8	8.0
February.....	22	33	78	10	-29	30	13	0.8	4	0.8	0.9	7.4	10.0
Winter mean.....	23	34	.....	12	.....	.....	.....	2.6	12	5.1	1.2	20.5	.....
March.....	36	47	87	22	- 6	44	25	1.5	6	1.2	1.1	6.6	8.0
April.....	52	64	94	38	13	57	48	3.2	■	5.1	3.6	1.1	4.0
May.....	62	74	100	49	30	66	53	4.3	10	0.6	11.0	0.0	0.0
Spring mean.....	50	62	.....	36	.....	.....	.....	9.0	24	6.9	15.7	7.7	.....
June.....	70	82	100	58	35	73	67	6.3	9	4.9	3.2	0.0	0.0
July.....	76	89	108	62	41	83	73	4.4	9	0.9	7.3	0.0	0.0
August.....	73	86	104	60	39	78	68	4.1	7	3.1	12.1	0.0	0.0
Summer mean.....	73	86	.....	60	.....	.....	.....	14.8	25	8.9	22.6	0.0	.....
September.....	65	79	104	51	23	72	59	2.8	6	0.6	3.8	0.0	0.0
October.....	54	68	93	40	13	61	48	1.7	6	2.0	1.5	0.5	4.0
November.....	37	48	75	24	- 7	45	26	1.1	4	0.3	1.8	3.3	5.0
Fall mean.....	52	65	.....	38	.....	.....	.....	5.6	16	2.9	7.1	3.8	.....
Annual mean.....	50	62	108	36	-36	.....	.....	32.0	77	23.8	46.6	32.0	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan., Feb., and Mar. missing.	(19 days missing) June 29, 30; July 10-12, 18, 22-27, 29, 30; Aug. 6-11, 13, 23, 28, 29, 31; Sept. 1, 7.	1899	Feb. 8, 9, 11, 12.....	Aug. 10; Sept. 4-6.
1895	Feb. 7, 8.....	May 8, 9, 27, 28; June 1; July 25, 26; Aug. 2, 8, 9, 12, 13, 22; Sept. 9, 10, 13, 16-18.	1900	None.....	June 21, 26; July 3, 6, 13; Aug. 2, 20, 22; Sept. 8.
1896	None.....	June 17; July 2, 12, 14; Aug. 3, 4, 7.	1901	Dec. 14, 15.....	June 24-28, 30; July 1, 4, 5, 10-28; Aug. 2, 17, 20-22, 29, 30.
1897	.....do.....	June 12, 16, 18, 22; July 2, 3, 6-8, 23, 29, 31; Aug. 1, 28; Sept. 1-5, 12-14, 26.	1902	Jan. 27.....	July 16, 30.
1898	.....do.....	June 22, 23, 30; July 1, 18, 24, 27; Aug. 20, 22, 25, 30; Sept. 1, 2, 28.	1903	None.....	July 9; Sept. 25.

NEBRASKA.

Southwestern District: KIMBALL COUNTY. Station: KIMBALL.

F. J. BELLOW, Observer.

[Established in November, 1887. Latitude, 41° 13' N. Longitude, 103° 40' W. Elevation, 4,667 feet.]

The station is in a valley about 800 feet due north of the depot. The surrounding country is somewhat like an open prairie, with hills about 200 feet high 2 miles north and 1½ miles south. There are no buildings near.

The thermometers are exposed in a standard shelter 30 feet north of the house and 4 feet above the sod.

The rain gage is 32 feet from the one-story house. Its top is 2 feet 10 inches above the sod.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, DECEMBER 1, 1887, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	29	41	68	16	-24	38	23	0.6	3	0.6	0.9	6.5
January.....	27	40	72	13	-33	33	19	0.5	3	0.9	1.2	5.1
February.....	26	38	69	13	-30	34	11	0.8	4	0.4	1.5	7.2
Winter mean.....	27	40		14				1.9	10	1.9	3.6	18.8
March.....	33	47	80	20	-17	39	29	1.0	4	1.1	1.3	8.9
April.....	46	61	89	31	6	51	43	1.9	6	0.3	4.9	8.5
May.....	56	71	93	41	22	60	50	2.4	9	1.7	2.8	1.8
Spring mean.....	45	60		31				5.3	19	3.1	9.0	19.2
June.....	66	82	102	50	32	70	61	2.0	7	3.1	3.7	0.0
July.....	72	88	106	56	41	76	68	2.5	7	1.6	0.9	0.0
August.....	71	87	104	54	35	73	69	1.4	5	0.3	1.2	0.0
Summer mean.....	69	86		53				5.9	19	5.0	5.8	0.0
September.....	61	77	97	44	20	67	56	0.9	3	0.2	0.6	0.2
October.....	49	65	91	33	10	56	41	0.5	2	0.5	2.3	1.4
November.....	36	51	87	21	-21	42	30	0.4	2	0.4	0.1	3.1
Fall mean.....	49	64		33				1.8	7	1.1	3.0	4.7
Annual mean.....	48	62	106	33	-33			14.9	55	11.1	21.4	42.7

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 5, 9 (nine days missing); Feb. and Nov. missing; Dec. 27, 28.	June and July missing; Aug. 5-12, 15, 16; Sept. 5.	1899	Feb. 1-6, 10, 11, 22; Mar. 26.	June 17; Aug. 27; Sept. 1, 3.
1895	Jan. 27, 28; Feb. 1, 5, 6, 11-15; Mar. 14, 15.	July 25, 28; Aug. 12, 13, 16, 21, 26; Sept. 13, 16, 17.	1900	Feb. 7, 15; Dec. 30, 31.	June 25, 28-30; July 9, 13, 14; Aug. 1, 2, 17, 30.
1896	Feb. and Mar. missing; Nov. 26, 27.	July 5, 11, 12, 13, 14; Aug. 4, 7, 13, 28.	1901	Jan. 1; Feb. 8; Dec. 13.	June 24, 29, 30; July 2, 3, 7, 8, 9, 13, 14, 20, 22, 28, 30; Aug. 1, 9, 24.
1897	Jan. 25-27; Dec. 3, 15, 16.	July 6, 7, 13, 29; Aug. 1, 25.	1902	Jan. 24-28; Feb. 1.....	June 9, 10, 24; July 15, 29; Aug. 1.
1898	Jan. 25; Dec. 9, 30.....	June 17, 22, 27-30; July 22, 23, 25, 26; Aug. 4, 12, 13, 19, 20, 21, 25, 27, 29; Sept. 2.	1903	Feb. 6, 12-15.....	June 28; July 14.

NEBRASKA.

Platte Valley: LINCOLN COUNTY. Station: NORTH PLATTE.

J. C. PIERCY, Observer.

[Established by the United States Signal Service in September, 1874. Latitude, 41° 8' N. Longitude, 100° 45' W. Elevation, 2,803 feet.]

North Platte is situated in the valley of the North and South Platte rivers, 2 miles from their confluence. The valley is about 8 miles wide at this point, extends in an east and west direction, and is bounded by hills from 100 to 300 feet in height above the valley, the hills being about 4 miles from the station.

From the opening of the station to June 20, 1876, the office was located in the public school building; from that date to February 10, 1882, in the court-house, and from February 11, 1882, to the present date, in the Odd Fellows hall, on the southwest corner of Fifth and Dewey streets.

The thermometers are exposed on the roof of the office building, 43 feet above the ground, in a standard shelter; the rain and snow gages, anemometer, and wind vane are also on the same roof, their tops being 35 feet above ground.

The record of humidity is for fifteen years. Remainder of data is from the full period of observation, twenty-nine years, September 18, 1874, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	27	39	70	15	-30	37	15	0.5	5	T.	1.4	2.7	4.8	77	0.95	61	1.29	W.
January.....	24	32	70	10	-35	32	8	0.4	5	0.3	1.2	3.5	6.0	78	0.80	63	1.07	W.
February.....	25	38	74	14	-35	37	13	0.4	5	0.3	1.4	6.0	7.5	78	0.80	65	1.15	NW.
Winter mean.....	25	36	.....	13	.....	.....	.....	1.3	15	0.6	4.0	12.2	.....	78	0.85	63	1.17	W.
March.....	35	48	80	23	-21	45	27	0.8	6	1.7	0.5	6.0	12.6	78	12.1	59	1.62	NW.
April.....	49	61	93	36	12	53	42	2.1	8	1.6	3.1	0.0	0.0	74	2.03	51	2.39	NW.
May.....	59	70	97	47	25	63	52	2.8	10	0.4	4.1	0.0	0.0	78	3.29	50	3.39	SE.
Spring mean.....	48	60	.....	35	.....	.....	.....	5.7	24	3.7	7.7	6.0	.....	77	2.18	53	2.47	NW.
June.....	68	80	102	56	33	72	64	3.2	10	3.5	7.5	0.0	0.0	79	4.54	55	4.99	SE.
July.....	74	86	107	62	41	81	70	2.6	8	2.4	1.3	0.0	0.0	81	5.49	52	5.86	SE.
August.....	72	84	103	60	40	77	67	2.3	8	0.2	4.5	0.0	0.0	83	4.93	53	5.02	SE.
Summer mean.....	71	83	.....	59	.....	.....	.....	8.1	26	6.1	13.3	0.0	.....	81	4.99	53	5.49	SE.
September.....	63	77	101	49	21	71	60	1.4	5	0.1	1.1	0.0	0.0	79	3.45	48	3.83	SE.
October.....	50	64	90	37	9	56	44	1.0	5	0.6	3.5	1.8	10.0	78	2.06	51	2.47	NW.
November.....	35	49	81	22	-25	43	24	0.4	4	T.	0.4	2.2	8.9	77	1.31	58	1.65	NW.
Fall mean.....	49	63	.....	36	.....	.....	.....	2.8	14	0.7	5.0	4.0	.....	78	2.27	52	2.65	NW.
Annual mean.....	48	61	107	36	-35	.....	.....	17.9	79	11.1	30.0	22.2	12.6	78	2.57	56	2.94	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 23, 24.....	June 30; July 11, 18, 22, 23, 25, 26; Aug. 7, 10, 13, 17, 19.	1899	Feb. 5, 11, 12.....	June 18, 19; July 5, 25; Aug. 28, 29; Sept. 1, 5.
1895	Feb. 7.....	May 8, 27; July 26, 28; Aug. 8, 16, 26; Sept. 2, 5, 10, 11, 13.	1900	None.....	June 21, 26, 30; July 9, 12, 14; Aug. 1-3, 18-20.
1896	None.....	July 14; Aug. 3, 7, 10, 29; Sept. 14, 17-19.	1901	Dec. 14, 15.....	June 23-26, 29; July 3, 4, 7, 8-17, 19-22, 25, 27, 28, 31; Aug. 1, 6, 25.
1897	.....do.....	July 2, 6-18, 22, 29, 30, 31; Aug. 1, 25, 31.	1902	None.....	June 10; July 15; Aug. 1, 17; Sept. 7.
1898	.....do.....	June 28; July 17, 18, 26; Aug. 19, 20, 21, 22, 25, 29, 30; Sept. 1, 2.	1903	.....do.....	July 20; Aug. 22.

NEBRASKA.

Southwestern District: CUSTER COUNTY. Station: ANSLEY.

CHARLES R. HARE, Observer.

[Established January, 1889. Latitude, 41° 15' N. Longitude, 99° 22' W. Elevation, 2,307 feet.]

This station is east of the central portion of the village of Ansley. To the east is a range of hills about 150 feet high, while to the west is the valley of Middle Creek, about 1½ miles wide.

The thermometers have been exposed most of the period under a porch on the north side of the observer's house, 2 inches from the brick wall, and 4 feet 6 inches above the sod.

The rain gage is exposed about 75 feet southwest of the house, and has a good exposure, although there are some small trees about 40 feet east of the gage. The height of the top of the gage above the sod is 2 feet 10 inches. Monthly mean temperatures are computed from the daily extremes.

Tabulated data are for the period of observation January, 1889, to December, 1903. The record is somewhat broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	In.		In.	In. T.	In.	In.
December.....	28	40	74	13	—28	34	19	0.5	3	0.2		3.4	12.0
January.....	23	38	74	10	—42	30	16	0.4	2	0.4	0.6	3.5	12.0
February.....	23	36	76	10	—36	35	13	0.9	4	0.4	1.6	7.1	8.0
Winter mean.....	25	38		11				1.8	9	1.0	2.2	14.0	
March.....	33	47	89	19	—18	39	26	1.3	4	0.1	0.4	6.1	12.0
April.....	50	66	94	34	9	57	46	2.8	6	2.7	1.2	0.4	3.0
May.....	60	75	100	45	20	66	51	3.2	8	3.9	9.6	0.0	0.0
Spring mean.....	48	63		33				7.3	18	6.7	11.2	6.5	
June.....	69	83	108	53	11	74	64	4.0	8	3.5	2.9	0.0	0.0
July.....	74	90	109	58	37	80	71	3.5	7	1.4	6.4	0.0	0.0
August.....	73	88	106	57	37	77	71	2.8	6	2.1	6.6	0.0	0.0
Summer mean.....	72	87		56				10.3	21	7.0	15.9	0.0	
September.....	63	79	101	46	21	72	58	1.7	4	1.6	0.6	0.0	0.0
October.....	51	67	92	33	7	55	44	1.5	3	1.1	0.8	0.7	4.0
November.....	37	49	88	21	—13	42	26	0.4	2	0.4	0.6	1.3	3.0
Fall mean.....	49	65		33				3.6	9	3.1	2.0	2.0	
Annual mean.....	51	63	109	33	—42			23.0	57	17.8	31.3	22.5	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	(Jan., Feb., and Mar. missing) Dec. 27, 28.	May 15, 27; June 19, 20, 27-30; July 10, 11, 17, 18, 21-31; Aug. 1, 6-13, 16-18, 23, 30, 31; Sept. 1, 3, 4.	1900	Feb. 8, 14-16; Dec. 31...	June 6, 9, 20, 21, 24-27, 30; July 1, 3, 8-10, 12-14, 18, 22, 30, 31; Aug. 1-3, 13, 17-19; Sept. 4, 7, 8.
1895	Jan. 3, 27, 28; Feb. 4-9.	May 8, 26; June 23; July 17, 18, 26-28; Aug. 26; Sept. 9-11, 13, 14, 16-19.	1901	Jan. 10; Feb. 3, 8, 9; Dec. 12-16, 18, 19.	June 24, 25, 29, 30; July 3, 6-26 (last 5 days missing); Aug. 25, 26; Sept. missing.
1896	Jan. 3; Nov. 28-30....	June 18; July 2, 5, 12-14, 26, 29, 30; Aug. 3, 4, 7, 10, 15, 28, 29.	1902	Jan. 25-29, 31; Feb. 1, 3, 8, 9.	June 2, 10; July 11, 15, 16; Aug. 12, 17; Sept. 7.
1897	Jan. 24-27.....	June 22; July 6-8, 22, 28-31; Aug. 1, 28; Sept. 4, 22.	1903	Feb. 15-18.....	June 18; July 7, 8, 20, 25-28; Aug. 4, 22; Sept. 25.
1898	Nov. 22; Dec. 30.....	June 28; July 18, 22, 23, 26, 27; Aug. 10, 14, 15, 19-22, 25, 29-31; Sept. 1, 2.			
1899	Jan. 29-31; Feb. 1-11, 21.	June 11, 18, 19; July 10, 25; Aug. 9, 10, 19, 28-30; Sept. 4, 5, 6.			

NEBRASKA.

Southeastern District: NANCE COUNTY. Station: GENOA.

G. S. TRUMAN, Observer.

[Established January, 1876. Latitude, 41° 26' N. Longitude, 97° 43' W. Elevation, 1,584 feet.]

This station is located near the western line of Platte County, about 3 miles from the village of Genoa, on the north side of the valley of the Loup, on a slope facing the southeast.

The thermometers are exposed in a shelter attached to the northeast side of the dwelling. The shelter is made of atticed window shutters, 4 feet 6 inches by 1 foot at the base, and 6 feet high. The thermometers are 5 feet above the ground.

The rain gage is located in an open space about 100 feet from the house; about 200 feet north of the gage is a belt of trees running east and west, but they do not interfere with the exposure. The top of the gage is 2 feet 10 inches above the sod. This entire record has been kept under practically identical conditions.

Up to and including 1893 monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; after that time from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1876, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	24	35	68	17	-28	35	12	0.8	11	1.0	0.3	5.3	5.5
January.....	19	29	70	10	-35	29	5	0.7	4	0.6	T.	6.5	16.7
February.....	22	32	73	12	-30	33	13	0.8	5	0.5	0.6	7.3	20.0
Winter mean.....	22	32	.....	13	.....	.....	.....	2.3	14	2.1	0.9	19.1	.....
March.....	33	44	89	24	-17	44	24	1.3	6	0.6	0.6	7.0	18.0
April.....	50	62	92	40	6	57	42	3.0	8	1.9	5.9	1.8	6.0
May.....	60	73	101	50	26	88	53	4.1	10	1.9	3.2	0.0	0.0
Spring mean.....	47	60	.....	38	.....	.....	.....	8.4	24	4.4	9.7	8.8	.....
June.....	70	81	101	60	39	74	66	4.4	10	4.8	2.0	0.0	0.0
July.....	75	87	109	64	43	84	70	3.9	9	1.0	5.3	0.0	0.0
August.....	73	84	104	62	41	89	68	3.1	8	1.0	6.9	0.0	0.0
Summer mean.....	73	84	.....	62	.....	.....	.....	11.4	27	6.8	14.2	0.0	.....
September.....	64	77	104	53	25	72	59	3.0	6	0.5	10.4	0.0	0.0
October.....	51	65	90	40	11	59	38	1.8	5	1.5	4.8	0.6	7.0
November.....	34	47	79	25	-27	44	23	0.8	3	0.1	0.2	3.0	12.0
Fall mean.....	50	63	.....	39	.....	.....	.....	5.6	14	2.1	15.4	3.6	.....
Annual mean.....	48	60	100	38	-35	.....	.....	27.7	70	15.4	40.2	31.5	20.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 23-25; Dec. 27.	May 14, 15; June 27, 29, 30; July 17, 18, 22-27, 29-31; Aug. 6-11, 13, 14, 16, 17, 23, 28, 29, 31; Sept. 3.	1899	Jan. 28-30; Feb. 2-5, 7-13, 27.	June 18, 19; July 10, 11, 25; Aug. 2, 22, 28, 29; Sept. 1, 3-6.
1895	Jan. 11, 12, 27, 28; Feb. 1, 3, 5-8.	May 8, 27, 28; June 24; July 17, 18, 20, 26, 28; Aug. 2, 7, 22; Sept. 10, 11, 13, 14, 17-20.	1900	Feb. 15, 16.	June 26, 30; July 2, 4, 6, 9, 10, 12-14, Aug. 2, 7, 10; Sept. 8.
1896	None.	July 2, 26, 29; Aug. 3, 4, 7, 9.	1901	Dec. 13-15.	June 24-27, 29, 30; July 3, 4, 8-28; Aug. 1, 16, 19, 20, 25, 27, 28.
1897	Jan. 24-26; Feb. 26.	June 16, 17, 22; July 6-8, 29, 31; Aug. 1, 28; Sept. 1, 2, 4, 5.	1902	Jan. 26, 27, 30, 31; Feb. 2, 4; Dec. 26.	None.
1898	Dec. 31.	July 18, 23, 24, 26; Aug. 5, 19-22, 27, 30; Sept. 1, 2.	1903	Feb. 16-18.	Do.

NEBRASKA.

Southeastern District: BUTLER COUNTY. Station: DAVID CITY.

S. CLINGMAN, Observer.

[Established January 1, 1889. Latitude, 41° 15' N. Longitude, 97° 06' W. Elevation, 1,007 feet.]

This station is in the northern portion of the city and is surrounded by residences and trees. The country around the station is an elevated plateau. The general slope of the surface is toward the south. The station is 8 miles south of and about 160 feet higher than the Platte River.

The thermometers are exposed in a standard shelter attached to the north side of the dwelling. The height of thermometers above the sod is 5 feet.

The rain gage is 50 feet south of a two-story house, and about 25 feet from the branches of several fruit trees. The height of the top of the gage above the sod is 2 feet 10 inches.

Until January 1, 1898, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; after that time from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	26	34	64	15	-17	34	21	0.8	3	1.0	0.2	4.4	4.0
January.....	21	36	60	16	-30	29	11	0.8	3	0.6	0.6	7.2	4.0
February.....	21	30	72	10	-30	30	13	0.7	3	0.5	0.3	6.2	6.0
Winter mean.....	23	33		14				2.3	9	2.1	1.1	17.8	
March.....	32	45	86	23	-11	37	21	1.6	4	0.3	2.7	6.7	8.0
April.....	50	63	89	40	10	57	43	3.7	7	1.8	10.3	0.6	4.0
May.....	59	71	100	41	30	64	50	4.2	8	1.2	7.6	0.0	2.9
Spring mean.....	47	60		35				9.5	19	3.3	20.6	7.3	
June.....	69	81	101	61	39	74	62	4.3	8	6.6	2.8	0.0	0.0
July.....	74	87	106	65	49	78	67	3.8	6	1.0	6.9	0.0	0.0
August.....	71	85	101	63	36	77	63	3.7	6	0.1	1.5	0.0	0.0
Summer mean.....	71	84		63				11.8		7.7	11.2	0.0	
September.....	63	75	101	52	27	72	54	2.3	4	0.7	4.2	0.0	0.0
October.....	51	66	90	43	10	59	43	2.1	5	1.7	3.3	0.6	4.0
November.....	54	48	73	27	-8	44	25	0.8	2	T.	2.6	2.2	6.0
Fall mean.....	49	63		41				5.2	11	2.4	10.1	2.8	
Annual mean.....	48	60	106	38	-30			28.8	59	15.5	43.0	27.9	16.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 23-25; Dec. 27.	July 23, 26; Aug. 8-11, 13, 16, 23, 28, 29.	1900	Feb. 14, 15.....	June 26; July 1, 3, 6, 12, 13, 14; Sept. 8.
1895	Jan. 11, 12, 27; Feb. 1, 3, 5-8.	May 8, 28; June 24; July 17, 26, 28; Aug. 8; Sept. 10, 13, 14, 17, 18, 19.	1901	Dec. 13-16, 18, 19.....	June 23-30; July 3, 4, 8-27; Aug. 1.
1896	None.	July 14; Aug. 3, 4, 7.	1902	Jan. 25, 26, 29, 30; Feb. 3-5; Oct. to Dec. missing.	June and July missing.
1897	Jan. 24, 25; Feb. 26....	July 6-8, 23, 31.	1903	Jan. and Feb. missing.	June 30; July 9.
1898	Dec. 31.	July 18; Aug. 20, 22, 30, 31.			
1899	Jan. 28-30; Feb. 3, 4, 7-12; Mar. 5.	June 12; Aug. 2, 22, 28; Sept. 4-6.			

NEBRASKA.

Northeastern District: DOUGLAS COUNTY. Station: OMAHA.

L. A. WELSH, Local Forecaster.

[Established November 1, 1870. Latitude, 41° 16' N. Longitude, 95° 56' W. Elevation, 1,040 feet.]

This station is located near the business center of the city, at the foot of a low range of hills, conforming with the bend in the Missouri River. The hills curve to the east, and the station is near the eastern extremity of the curve and about a mile west of the river. To the west the incline is quite steep, reaching a height of about 125 feet, or a little higher than the anemometer, within a third of a mile. To the northwest the land rises gradually to an elevation of about 200 feet at a distance of a mile. North and south for several miles there is an unobstructed view along the valley of the Missouri. Beyond the western horizon lies the gently undulating expanse of Nebraska prairie.

The instruments are located on a platform attached to the side of the gable roof of the post-office building. The exposure is fairly good for all instruments, except the wind vane and anemometer, which are greatly influenced by a large clock tower about 65 feet to the southeast. The elevations of the instruments above ground are: Thermometers, 115 feet; rain gage, 107 feet; anemometer, 121 feet.

The office has been in the present location since May 17, 1899; from October 23, 1878, to May 17, 1899, it was a block farther east, with a better exposure; and from November 1, 1870, to October 23, 1878, it was about three blocks farther east and two blocks south.

Tabulated data are from the following periods of observation: Sunshine data, seven years; humidity, fifteen years. Remainder of data is from the full period of observation, thirty-three years—January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.				Mean humidity.				Total—sunshine		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	° F. 27	° F. 35	° F. 71	° F. 19	° F. -17	° F. 39	° F. 17	In. 1.0	7	0.9	0.7	5.4	P. ct. 81	Gr. s. 1.15	P. ct. 72	Gr. s. 1.52	140	49	NW.
January.....	21	30	63	12	-32	35	8	0.6	7	0.5	1.0	5.0	82	0.88	71	1.16	179	60	NW.
February.....	25	34	78	15	-26	38	14	0.7	7	1.3	1.1	5.0	81	0.95	71	1.21	167	56	NW.
Winter mean.....	24	33	.....	15	.....	.....	.....	2.3	21	2.7	2.8	15.4	81	0.99	71	1.30	162	55	NW.
March.....	36	45	85	26	-7	48	27	1.4	9	0.9	0.5	5.3	79	1.46	66	1.76	199	54	NW.
April.....	52	62	92	42	6	58	44	3.0	11	2.3	3.2	0.2	74	2.45	54	2.71	240	60	NW.
May.....	62	72	97	51	28	70	54	4.4	12	0.6	11.3	0.0	75	3.77	56	4.06	267	60	SE.
Spring mean.....	50	60	.....	40	.....	.....	.....	8.8	31	3.8	15.0	5.5	76	2.56	50	2.84	235	58	NW.
June.....	72	81	100	62	42	75	66	5.2	11	4.7	12.7	0.0	79	5.36	57	5.52	295	65	SE.
July.....	76	86	106	67	50	83	71	4.6	9	0.6	4.8	0.0	76	6.07	55	6.36	341	74	SE.
August.....	74	84	105	65	44	80	70	3.5	8	0.4	3.4	0.0	85	5.96	58	6.17	290	68	SE.
Summer mean.....	74	84	.....	65	.....	.....	.....	13.3	28	5.7	20.9	0.0	80	5.80	57	6.02	309	69	SE.
September.....	66	76	102	56	30	75	60	2.9	8	2.5	4.5	0.0	78	4.12	56	4.48	250	67	SE.
October.....	54	64	92	44	15	62	50	2.5	7	2.9	5.0	0.6	75	2.67	54	2.83	202	59	S.
November.....	38	45	80	28	-14	49	28	1.0	4	0.1	0.6	2.4	76	1.60	64	1.91	160	54	NW.
Fall mean.....	53	62	.....	43	.....	.....	.....	6.4	19	5.5	10.1	3.0	76	2.80	58	3.07	204	60	S.
Annual mean.....	50	60	106	41	-32	.....	.....	30.8	100	17.7	48.8	23.9	78	3.04	61	3.31	228	60	SE.

a Also SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -1°.	Maximum 97° or above.	Year.	Minimum below -1°.	Maximum 97° or above.
1894	Jan. 6, 8, 22, 25, 27; Feb. 15, 19, 21; Dec. 27, 28.	June 30; July 26, 27; Aug. 9-11, 13.	1899	Jan. 27-31; Feb. 2-13, 23, 27; Mar. 6.	Sept. 5, 6.
1895	Jan. 8, 11-13, 23, 24, 26, 27, 29, 30; Feb. 1-8, 10.	July 16, 26; Sept. 10, 11, 17-19.	1900	Jan. 28, 30, 31; Feb. 8, 9, 13, 15-17, 24; Mar. 16; Dec. 31.	July 3, 6.
1896	Jan. 3, 4; Nov. 23, 30.	None.	1901	Dec. 13-20.....	June 24-26, 28-30; July 4, 9-17, 19-26; Aug. 1.
1897	Jan. 23-29; Feb. 26; Mar. 14; Nov. 29; Dec. 1, 16, 18, 21.	June 16; July 3, 7, 8, 23, 31; Sept. 1, 2, 5.	1902	Jan. 26-28, 31; Feb. 1-4, 8, 9; Dec. 25, 26.	None.
1898	Feb. 2; Nov. 22; Dec. 8, 9, 13, 31.	Aug. 20-22, 30.	1903	Jan. 11, 12; Feb. 15-18; Dec. 12, 13, 25, 26.	July 9.

NEBRASKA.

Southwestern District: CHASE COUNTY. Station: IMPERIAL.

ROBERT MALCOLM, Observer.

[Established in June, 1890. Latitude, 40° 32' N. Longitude, 101° 38' W. Elevation, 3,278 feet.]

This station is in the village of Imperial, in an open, level country, about 7 miles north of the Frenchman River and 7 miles south of the Stinking Water Creek. There are sand hills 13 miles north of the station.

The thermometers were exposed in a standard shelter 3 feet 6 inches above the sod during the last four years of the record, but before that time they were attached to the north side of the house.

The standard rain gage is 50 feet from a one-story house and 45 feet from the nearest tree. The top of the gage is 4 feet above the sod.

Until December 1, 1894, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; after that time from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	29	43	70	14	-30	37	21	0.6	3	0.4	1.5	4.2	8.0
January.....	27	42	66	13	-25	32	20	0.5	2	0.2	1.8	4.9	12.0
February.....	26	40	73	12	-35	36	13	0.0	4	1.0	0.0	8.3	11.5
Winter mean.....	28	42	.....	13	.....	.....	.....	2.0	9	1.6	3.3	17.4	.....
March.....	36	52	88	21	-8	42	32	1.3	4	0.2	2.0	8.2	14.0
April.....	50	65	91	36	10	54	46	2.2	6	0.8	2.8	2.5	10.0
May.....	60	75	105	47	27	65	53	2.7	7	2.5	4.0	0.6	6.0
Spring mean.....	49	64	.....	35	.....	.....	.....	6.2	17	3.5	8.8	11.3	.....
June.....	70	84	107	54	35	80	63	3.3	8	2.5	8.0	0.0	0.0
July.....	76	91	108	59	40	83	68	2.8	7	3.6	4.7	0.0	0.0
August.....	75	90	107	59	40	80	71	2.5	5	3.0	3.0	0.0	0.0
Summer mean.....	74	88	.....	57	.....	.....	.....	8.6	20	9.1	15.7	0.0	.....
September.....	65	81	103	48	22	71	60	1.1	3	0.8	0.8	0.1	1.5
October.....	52	69	91	34	9	60	47	0.9	3	T.	0.7	1.6	10.0
November.....	37	53	88	21	-18	43	27	0.4	2	0.8	0.0	1.8	5.0
Fall mean.....	51	68	.....	34	.....	.....	.....	2.4	8	1.6	1.5	3.5	.....
Annual mean.....	50	65	108	35	-35	.....	.....	19.2	54	15.8	29.3	32.2	14.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan., Feb., and Mar. missing; Dec. 26, 27.	May 12-15, 26, 29; June 2-4, 11-13, 18, 22, 24-30; July 1-3, 5, 8-11, 16-18, 21-26, 28-31; Aug. 5-13, 16, 18, 19, 22, 28, 30; Sept. 1, 4.	1899	Jan. 31; Feb. 2-7, 9, 11, 12, 23.	June 11, 17-19; July 5, 9-11, 21, 22, 25, 31; Aug. 7, 9, 10, 16-19, 21, 25-29; Sept. 1, 3-6, 11, 13; Oct. 1.
1895	Jan. 27, 31; Feb. 1, 6, 7, 10, 12, 14, 15.	May 8, 27; June 16, 23, 24; July 4, 5, 15, 17, 26-28; Aug. 7-9, 16, 17, 22, 25, 26; Sept. 5, 9-11, 13, 14, 16-18.	1900	Feb. 8, 15, 16; Dec. 29, 31.	June 20, 21, 25-30; July 1, 2, 9-14, 18, 21, 27, 30, 31; Aug. 1-5, 7, 10, 12, 16, 18, 19, 30; Sept. 1, 6-8.
1896	Jan. 2; Nov. 26-29.	May 29; June 14-19, 22, 29; July 2, 5, 11-14, 19, 25, 26, 29; Aug. 1-4, 6-10, 12-15, 20, 28-30; Sept. 1, 7.	1901	Jan. 1, 2; Feb. 4, 9, 10; Dec. 13-15.	June 23-25, 29; July 2-4, 6-15, 16-25, 27, 28; Aug. 3, 6, 8, 23-25, 27.
1897	Jan. 25-28; Dec. 16, 17.	June 15, 19, 21, 22, 28; July 1, 2, 4-8, 11, 13, 15, 16, 21, 22, 26-31; Aug. 1, 25, 28, 31; Sept. 1, 3-7, 12.	1902	Jan. 25-29; Feb. 2.	June 1, 9, 10; July 15, 16, 24, 29; Aug. 1, 2, 12, 13, 15-17; Sept. 2, 7.
1898	Dec. 9, 31.	June 28, 30; July 1, 17, 18, 22, 23, 26, 27; Aug. 4, 12-15, 18, 19-22, 24-27, 29-31; Sept. 1, 2.	1903	Feb. 7, 16, 17.	June 29, 30; July 6, 7, 13, 20, 25-27; Aug. 5, 20-23; Sept. 1, 2.

NEBRASKA.

Southwestern District: FURNAS COUNTY. Station: BEAVER CITY.

C. G. GEORGE, Observer.

[Established December, 1892. Latitude, 40° 08' N. Longitude, 99° 50' W. Elevation, 2,147 feet.]

This station is near the northern limits of the village of Beaver City, 300 to 400 feet above Beaver Creek, which passes south of the village.

The thermometers are exposed in a shelter painted white and attached to the northwest corner of the house, 4 feet 4 inches above the ground. The shelter is made of slats laid flat three-fourths of an inch apart, except on the west side, where they are put in slanting to keep the sun from shining through when it is in the west.

About 53 feet west of the shelter is the standard rain gage, with its top 2 feet 10 inches above the sod. There are no trees within 50 feet of the gage.

The entire record used at this station was kept under practically identical conditions.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, DECEMBER 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- mum.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Aver- age depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	31	47	70	18	-20	88	26	0.4	2	0.6	T.	3.0	7.5
January.....	29	41	68	15	-24	33	24	0.2	2	0.2	0.3	1.8	3.0
February.....	27	41	77	13	-35	37	16	0.7	4	0.8	1.8	5.8	10.0
Winter mean.....	29	44		15				1.3	8	1.6	2.1	10.6	
March.....	39	55	92	23	-5	44	33	0.8	4	0.3	0.9	3.2	7.0
April.....	52	69	97	37	11	57	50	2.5	6	0.7	2.2	0.7	3.5
May.....	63	78	100	48	25	66	58	3.2	8	0.1	11.1	0.0	0.0
Spring mean.....	51	67		38				6.5	18	1.1	14.2	3.9	
June.....	71	86	118	57	33	76	67	3.9	9	2.5	1.8	0.0	0.0
July.....	76	91	110	62	41	86	71	3.8	8	1.9	6.3	0.0	0.0
August.....	75	90	100	60	40	82	70	2.3	7	0.4	3.4	0.0	0.0
Summer mean.....	74	89		60				10.0	24	4.8	11.5	0.0	
September.....	67	83	108	51	27	74	63	2.0	5	3.0	0.2	0.0	0.0
October.....	55	71	98	38	14	60	49	0.9	4	0.9	0.9	0.9	7.0
November.....	40	55	85	24	-10	45	32	0.6	2	0.0	0.7	1.4	3.0
Fall mean.....	54	70		38				3.5	11	3.9	1.8	2.3	
Annual mean.....	52	67	110	37	-35			21.3	61	11.4	29.6	16.8	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 24; Feb. 13...	May 13-15; June 4, 19, 27, 29, 30; July 10-12, 17, 18, 22, 23-27, 29-31; Aug. 6, 8-19, 23, 24, 28-31; Sept. 3.	1900	Feb. 9, 16.....	May 11; June 6, 7, 9, 16, 20, 21, 25-27, 29, 30; July 1-3, 5, 6-8, 10-15, 18, 21, 22, 30, 31; Aug. 1-4, 6-23, 26, 27; Sept. 1, 4, 6-9; Oct. 3-5.
1895	Feb. 1, 7.....	May 8, 9, 27, 28; June 23, 24; July 17, 18, 26-28; Aug. 13, 16, 22, 26, 27; Sept. 5, 9-13, 14, 16-20.	1901	Jan. 1, 2, 11; Feb. 4, 9; Dec. 14, 15.	Apr. 26; June 11, 22-30; July 1-4, 6-28, 30, 31; Aug. 1, 2, 6, 12, 13, 15, 16, 18, 20, 24-28; Sept. 24.
1896	Nov. 28.....	June 6, 13, 14, 16, 18; July 2, 12, 14, 15, 21, 26; Aug. 3, 4, 7, 9, 10, 14, 15, 30; Sept. 1.	1902	Jan. 26, 27, 30; Feb. 2, 4.	Apr. 20; May 2; June 1, 5, 10, 14; July 15, 16, 24, 29; Aug. 1, 2, 4, 12-14, 17; Sept. 7, 15.
1897	Jan. 27, 29; Dec. 17, 18.	June 16, 19, 22; July 6-8, 16, 22, 23, 26-31; Aug. 1-3, 25, 27, 28, 31; Sept. 1-7, 12.	1903	Feb. 16, 17.....	June 30; July 7, 9, 20, 28; Aug. 4, 23, 24.
1898	Dec. 31.....	June 22, 24, 28, 30; July 13-18, 22-24, 26, 27; Aug. 5, 9, 12, 14, 15, 19-22, 25-31; Sept. 1-3, 27.			
1899	Jan. 31; Feb. 2, 4, 5, 7-9, 11, 12.	June 11, 12, 17-21; July 5, 10-12, 15, 22, 25, 28, 31; Aug. 2, 3, 7-10, 17-22, 26-30; Sept. 1-6, 11, 14, 23, 27; Oct. 1.			

NEBRASKA.

Southeastern District: THAYER COUNTY. Station: HEBRON.

C. M. EASTON, Observer.

[Established January, 1886. Latitude, 40° 10' N. Longitude, 97° 35' W. Elevation, 1,436 feet.]

This station is in the southeastern portion of the residence part of the city, in the valley of the Little Blue River, about 25 feet above its water at the ordinary stage. The table lands are 40 to 60 feet higher and a mile away north and south.

The thermometers are exposed in a standard shelter, 4 feet above the ground.

The rain gage sets on the ground in the open, away from trees and buildings.

The entire record used has been kept under practically identical conditions.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1886, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	30	39	68	19	-14	41	23	0.7	3	0.5	1.2	2.3	4.5
January.....	24	37	71	16	-28	31	10	0.8	3	0.2	1.3	4.0	6.5
February.....	25	35	80	14	-34	29	15	0.7	4	0.8	0.3	4.3	7.0
Winter mean.....	27	37		16				2.2	10	1.5	2.8	10.6	
March.....	37	50	91	27	-8	43	30	1.5	8	1.0	0.7	3.9	14.0
April.....	54	67	100	41	18	58	50	2.5	6	1.4	0.6	0.1	1.0
May.....	62	75	101	51	28	67	55	4.7	9	1.6	4.2	0.0	0.0
Spring mean.....	51	64		50				8.7	20	4.0	5.5	4.0	
June.....	72	83	105	59	39	76	66	4.6	9	6.5	7.7	0.0	0.0
July.....	77	89	108	64	47	85	72	4.4	7	1.8	13.3	0.0	0.0
August.....	74	88	105	62	41	80	72	3.5	7	0.2	7.4	0.0	0.0
Summer mean.....	74	87		62				12.5	23	8.5	28.4	0.0	
September.....	56	80	103	54	25	74	60	2.3	8	1.7	4.7	0.0	0.0
October.....	54	69	93	41	15	61	50	2.2	4	1.0	3.3	T.	0.5
November.....	38	50	78	27	-16	45	32	1.0	3	T.	1.3	1.3	4.0
Fall mean.....	53	66		41				5.5	12	2.7	9.3	1.3	
Annual mean.....	51	64	108	50	-34			28.9	65	16.7	46.0	15.9	14.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23, 24; Feb. 13....	June 27, 29, 30; July 12, 18, 23-27, 29-31; Aug. 8-14, 16-20, 23, 28-31; Sept. 3, 6.	1899	Jan. 30; Feb. 4, 5, 8, 9, 11-13.	June 18, 19; Aug. 3, 8-11, 22, 28-30; Sept. 2, 4-6.
1895	Jan. 12; Feb. 1, 4-8....	May 8, 9, 28; June 23, 24; July 6, 7, 15-17, 26-28; Aug. 1, 4, 8, 10, 27; Sept. 10-19, 21.	1900	Feb. 9, 15, 16.....	June 7, 21, 26, 27; July 3, 6, 10-13; Aug. 14, 16-20; Sept. 5, 7-9.
1896	None.....	Apr. 10; June 14, 16; July 2, 15, 28; Aug. 3, 4, 7, 10, 14, 15.	1901	Dec. 14, 15, 20.....	June 23-30; July 1, 3, 4, 7, 8-29, 31; Aug. 1, 2, 7, 10, 18-20, 24-28; Sept. 5.
1897	Dec. 17, 18.....	June 16, 17; July 6-9, 29, 30-31; Aug. 2, 27, 28, 31; Sept. 1-5, 12, 13, 26, 27.	1902	Jan. 26, 27, 30, 31; Feb. 2, 4.	Apr. 20; May 12; June 10, 11; July 16; Aug. 4, 14, 17.
1898	Nov. 23.....	June 22-24, 29; July 18, 19, 22-24, 26-28, Aug. 5, 14-16, 19-22, 26-31; Sept. 1, 2, 4.	1903	Feb. 16, 17.....	July 8, 9, 21.

NEBRASKA.

Eastern District: LANCASTER COUNTY. Station: LINCOLN.

G. A. LOVELAND, Section Director.

[Established 1870. Latitude, 40° 49' N. Longitude, 96° 45' W. Elevation, 1,179 feet.]

Observations were begun in 1870 by some of the officials of the experiment station located near the city. For the first fifteen years the record was not kept regularly or most of the records have since been lost, for the records of only a few of these early months have been preserved. Beginning with May, 1886, the record is very complete, kept under the direction of the University of Nebraska until the establishment of a regular station of the United States Weather Bureau in January, 1897.

All records after 1886 were made on the campus of the University of Nebraska, which is about four blocks north of the center of the city; the shelter being on the top of a three-story building, the exposure has been essentially a city exposure. Standard thermometers, shelter, and rain gage were used. Until July, 1894, the instruments were on the top of the main building, at an elevation of 112 feet above ground. After July, 1894, the thermometers were on the roof of Nebraska Hall, at an elevation of 74 feet, while the rain gage was placed on the campus, well exposed, with the top at an elevation of 2 feet above the ground.

The mean temperature prior to 1894 is obtained from three observations, at 7 a. m., 2 p. m., and 9 p. m.; afterwards from maximum and minimum thermometer readings.

Tabulated data are from the following periods of observation: All temperature data, from seventeen to twenty-two years record; mean precipitation, twenty-two to twenty-nine years; number of days with precipitation, sixteen years; wettest and driest years, nineteen years record; snowfall data, ten years; humidity, fifteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 29	° F. 39	° F. 71	° F. 20	° F. -18	° F. 40	° F. 20	In. 0.8	5	In. 0.3	In. 2.0	In. 5.0	In. 6.6	P. ct. 82	Gr. 1.16	P. ct. 69	Gr. 1.28	NW.
January.....	32	33	66	14	-29	31	7	0.7	4	0.9	1.0	3.8	4.7	82	1.06	68	1.26	S.
February.....	23	34	79	14	-26	34	13	0.9	5	0.1	0.1	6.1	7.3	83	0.94	66	1.12	NW.
Winter mean.....	25	35		16				2.4	14	1.3	3.1	14.9		82	1.05	67	1.22	NW.
March.....	36	46	90	24	-11	46	28	1.2	7	0.7	0.4	5.4	5.4	79	1.46	61	1.74	NW.
April.....	52	62	95	41	17	58	45	2.6	8	0.3	0.7	0.5	2.0	76	2.60	54	2.90	NW.
May.....	62	72	98	51	31	69	54	4.6	11	3.4	3.6	0.0	0.0	80	4.01	59	4.41	SE.
Spring mean.....	50	60		39				8.4	26	4.4	4.7	5.9		78	2.69	58	3.02	N.
June.....	71	81	103	61	43	76	66	4.4	9	3.1	8.8	0.0	0.0	81	5.31	58	3.78	S.
July.....	76	87	106	65	49	85	70	4.1	8	1.7	11.4	0.0	0.0	77	6.14	54	6.28	S.
August.....	75	85	102	62	43	84	69	3.4	9	1.8	4.4	0.0	0.0	82	5.94	59	6.26	SE.
Summer mean.....	74	84		63				11.9	26	6.6	24.6	0.0		80	5.80	57	6.10	S.
September.....	66	78	101	55	27	75	62	2.1	6	1.0	4.1	0.0	0.0	79	4.10	56	4.47	SE.
October.....	55	66	92	43	15	63	46	2.1	6	1.1	2.8	0.5	4.7	73	2.72	56	3.11	SE.
November.....	39	48	80	28	-15	47	34	0.8	4	0.6	2.0	1.4	6.2	78	1.65	65	1.85	N.
Fall mean.....	54	64		42				5.0	16	2.7	8.9	1.9		77	2.82	56	3.14	SE.
Annual mean.....	50	61	106	40	-29			27.7	82	15.0	41.3	22.7	7.3	79	3.09	60	3.20	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23, 24.....	June 30; July 23, 25-28, 31; Aug. 9-11, 13, 14, 16, 17, 19, 23, 28-30.	1899	Jan. 30; Feb. 4, 7-13..	June 18, 19; Aug. 2, 9, 10, 23; Sept. 4-6.
1895	Jan. 12; Feb. 1, 6-8...	May 8, 9, 28; June 23, 24; July 6, 15-17, 26-28; Aug. 8, 12, 13, 27; Sept. 4, 10, 11, 13-14, 21.	1900	Feb. 9, 15.....	June 6, 21, 26; July 1, 3, 6, 12, 13; Aug. 17, 18, 20; Sept. 5, 8.
1896	None.....	July 2; Aug. 3, 4, 15.	1901	Dec. 13, 14.....	June 10, 23-30; July 3, 4, 8-27; Aug. 1, 25, 28.
1897	Jan. 24; Dec. 18.....	June 16, 17, 19; July 1-3, 5-9, 23, 29-31; Aug. 2, 28; Sept. 1, 2, 4, 6.	1902	Jan. 26, 27; Feb. 4...	Apr. 20; June 10; July 15, 16; Aug. 17.
1898	None.....	June 22, 24; July 18, 24, 26, 27; Aug. 20-22, 28-30; Sept. 1, 2, 4.	1903	Feb. 16-18.....	June 30; July 8, 9.

NEBRASKA.

Southeastern District: NEMAHA COUNTY. Station: AUBURN.

G. D. CARRINGTON, Observer.

[Established in May, 1889. Latitude, 40° 24' N. Longitude, 95° 51' W. Elevation, 1,051 feet.]

This station is located in the valley of the North Fork of the Little Nemaha River, with gently rising ground from the river, but with no high bluffs or hills. The station is about 30 feet above the bottom lands of the valley.

The thermometers are exposed in a standard shelter 50 feet south of the house and 5 feet above the ground.

The rain gage is 10 feet southwest of the shelter, in an open space, with the top of the gage 3 feet 3 inches above the ground.

Until January 1, 1899, monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; after that time, from the daily extremes.

Tabulated data are included within the period of observation May 1, 1889, to December 31, 1903. The record prior to 1894 is somewhat broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	38	66	17	-19	38	22	1.1	5	0.6	2.2	5.3	8.0	
January.....	26	40	68	18	-35	32	18	0.7	4	0.3	1.1	5.1	6.0	
February.....	25	32	79	10	-28	35	16	1.2	5	1.2	0.1	7.2	10.0	
Winter mean.....	27	37		15				3.0	14	2.1	3.4	17.6		
March.....	38	50	93	27	- 9	44	30	2.0	7	1.9	1.1	8.0	10.0	
April.....	54	66	100	40	14	60	49	3.2	9	3.2	1.0	0.5	2.0	
May.....	63	76	102	53	30	67	56	6.6	12	2.3	7.2	0.0	0.0	
Spring mean.....	52	64		40				11.8	28	7.4	9.3	8.5		
June.....	72	83	102	59	40	75	67	4.7	9	4.6	9.4	0.0	0.0	
July.....	77	91	109	66	46	86	73	4.8	8	2.4	9.9	0.0	0.0	
August.....	76	87	104	63	42	78	72	4.5	9	5.6	3.2	0.0	0.0	
Summer mean.....	75	87		63				14.0	26	12.6	22.5	0.0		
September.....	67	78	101	52	21	77	61	2.8	6	0.9	5.0	0.0	0.0	
October.....	56	72	95	45	16	62	51	3.1	6	0.2	4.7	0.7	5.0	
November.....	40	54	79	31	- 9	48	34	1.0	4	1.3	2.6	1.5	6.0	
Fall mean.....	54	68		43				6.9	16	2.4	12.3	2.2		
Annual mean.....	52	64	109	40	-35			35.7	84	24.5	47.5	28.3	10.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1895	Jan. 11, 12, 30; Feb. 1, 5, 7, 8.	May 8, 9, 28; June 23, 24; July 15-17, 25-27; Aug. 4, 8, 9, 12, 13, 27; Sept. 10, 11, 13-20.	1899	Jan. 29-31; Feb. 4, 5, 8-12; 27.	June 18; July 26; Aug. 1-3, 9-11, 23; Sept. 4-6; Oct. 12.
1896	None.	June 18-18, 20, 24; July 3, 12, 14, 15, 26, 31; Aug. 3-5, 7, 9, 14, 15.	1900	Feb. 15.	June 6, 7, 21, 28; July 3, 6, 13; Aug. 17, 20; Sept. 8.
1897	Jan. 26; Dec. 18, 21.	June 16-19, 29; July 1-3, 7-9, 22, 23, 28-31; Aug. 1-3, 27, 28, 31; Sept. 1-7, 9, 10, 13, 26, 27.	1901	Feb. 10; Dec. 14, 15, 19, 20.	June 24-30; July 1, 3-6, 8-28; Aug. 1, 7, 19-21, 25, 28; Sept. 5.
1898	Dec. 4, 9.	June 22, 23, 29, 30; July 18, 19, 24, 26, 27; Aug. 15, 19-23, 25, 26, 28-31; Sept. 2, 3, 28.	1902	Jan. 27; Feb. 4.	Apr. 20; May 12; June 10, 11; July 15; Aug. 2, 17.
			1903	Feb. 5, 16-18.	June 30; July 8-10, 20, 21, 25-27.

KANSAS.

By THORP B. JENNINGS,
Section Director.

KANSAS.

This State lies between 94° 38' and 102° 2' west longitude and 37° and 40° north latitude, and rises from an elevation of 800 feet above sea level at its eastern border to upward of 3,600 feet above sea level at its western border. It ranges in elevation from 700 feet in the southeastern part of Montgomery County to 4,120 feet in the northwestern part of Greeley and southwestern part of Wallace counties.

Geologically the State ranges from the Pliocene in the northwestern counties to the Lower Carboniferous in the southeastern corner. The soil ranges from a sandy loam in the western counties to a clayey loam in the eastern. The soil of the northeastern counties is largely due to glacial action, and terminal moraines indicate that this action was felt as far south as Greenwood County.

Temperature.—The mean winter temperature ranges from 28.5° in the northern counties to 34° in the southern. The mean spring temperature ranges from 50° in the northwestern counties to 57° in the southeastern. The mean summer temperature ranges from 74° in the northwestern counties to 79° in Montgomery County, in the southeastern part of the State. The mean autumn temperature ranges from 52° in the northwestern to 58° in the southeastern counties. Over a large part of the State the highest temperature recorded exceeds 110°, though it has not reached that height at Wichita, Hutchinson, or Dodge City. Nor has it reached that height in the eastern counties north of Cherokee County, nor in the northern counties. The highest temperature recorded was 115°, and occurred at the State Agricultural College in July, 1860. The lowest temperatures recorded range from 15° below zero in Morton County to 32° below zero in Finney and Riley counties. The average date of the last killing frost in spring ranges from April 6 in the extreme southeast corner of the State to May 5 in the northwestern counties. The average date of the first killing frost in autumn ranges from September 30 in the northwestern counties to October 25 in the extreme southeastern. The average number of growing days (interval between last and first killing frosts) ranges from 150 in the northwestern counties to 200 in the southeastern. Killing frosts in spring have occurred in May at all stations except Wichita and Columbus, the latest recorded occurring May 26, 1901, in the northwestern counties. The dates of earliest killing frosts recorded in the fall range from September 7 in the northwestern counties to October 9 in the extreme southeastern.

Wind.—The prevailing direction of wind is from the north during December and from the northwest during the rest of the winter. It is from the southwest to north during March and from the south during the rest of the year.

Precipitation.—The average winter precipitation ranges from 1.19 inches in the extreme northwest to 6.53 inches in the extreme southeastern corner. The increase is not so great in the northern as in the southern counties, the increase being from 1.19 inches in the extreme west to 3.99 inches in the extreme east in the northern counties, while in the southern it ranges from 1.98 inches in the extreme west to 6.53 inches in the extreme east. The average precipitation for the spring ranges from 4 inches in the western part of the State to 12 inches in the eastern; strictly speaking, from 3.74 inches at Wallace to 14.26 inches at Columbus. The average precipitation for summer ranges from 8 inches in the west to 14 inches in the east. The average precipitation for the autumn ranges from 2.36 inches in Wallace County to 9.04 inches in Cherokee County. The average annual precipitation ranges from 15 inches in the extreme west to 44 inches in the extreme southeast. The average number of rainy days per year increases from 49 in the extreme western counties to 99 in the eastern.

The average annual snowfall ranges from 8.6 inches in Montgomery County to 25.6 inches in Atchison County. In the eastern part of the State the snowfall increases from the south northward, but in the western part this condition is reversed and we find the average annual snowfall to be 18.1 inches in Thomas County, 21 inches in Finney County, and 21.2 inches in Morton County. In the central counties of the State, McPherson bears the palm, with an average annual snow fall of 24 inches, while Ottawa, the second county north, has but 16 inches, and Cloud County but 20.7 inches. The average annual number of days with measurable snowfall is least in the southern tier of counties, where it ranges from 6 to 9 days, and greatest in the northeastern counties, where it is 15 and upward. The general average in the western division is 11 days, in the middle division, 11 days, and in the eastern division, 12 days. The greatest snowfall in twenty-four hours is quite uniform over the State, ranging from 8 to 10 inches, but in the lower Solomon and Republican river valleys it increases to 11 and 12 inches. Around the headwaters of the Little Arkansas River, in McPherson county, it is 14 inches; in the valley of the Kansas River it is 18 inches; in Morton (the extreme southwestern county) it is 20 inches.

The total annual precipitation during the driest year ranges from less than 10 inches in the western counties to upward of 26 inches in the eastern; literally, from 9.30 inches in Morton County to 29.62 inches in Cherokee County. The total annual precipitation during the wettest year ranges from 21.16 inches at Wallace to 57.97 inches at Lebo, in Coffey County, and 58.30 inches at Columbus, in Cherokee County.

Thunderstorms.—The average annual number of days with thunderstorms ranges from less than 20 in the extreme southwestern counties to over 40 in the eastern. Wichita has the greatest number, its record showing 49 days. Otherwise the number of days with thunderstorms is quite uniform, except in the extreme western and extreme eastern counties, ranging between 34 and 37.

Hail.—The average annual number of days with hailstorms is 2 in the extreme western and southeastern counties, and 3 over the rest of the State, except in Trego, Ford, and Sedgwick counties, where the number is increased to 4.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Allen (see Lebo)		Southeastern		Lincoln (see Minneapolis)		Central	
Anderson (see Lebo)		Central eastern		Linn (see Lebo)		Central eastern	
Atchison	Atchison	Northeastern	607	Logan (see Colby and Wallace)		Central western	
Barber (see Englewood and Wichita)		Central southern		Lyon (see Lebo)		Central eastern	
Barton (see Macksville)		Central		McPherson	McPherson	Central	612
Bourbon (see Columbus)		Southeastern		Marion (see McPherson)		do.	
Brown (see Atchison)		Northeastern		Marshall (see Concordia)		Northeastern	
Butler (see Wichita)		Central southern		Meade (see Englewood)		Northwestern	
Chase (see Lebo)		Central		Miami (see Lebo and Topeka)		Central eastern	
Chautauqua (see Independence)		Southeastern		Mitchell (see Concordia)		Central northern	
Cherokee	Columbus	do.	623	Montgomery	Independence	Southeastern	622
Cheyenne (see Colby)		Northwestern		Morris (see Agricultural College)		Central eastern	
Clark	Englewood	Southwestern	621	Morton	Viroqua	Southwestern	620
Clay (see Concordia)		Central northern		Nemaha (see Atchison)		Northeastern	
Cloud	Concordia	do.	606	Neosho (see Columbus and Independence)		Southeastern	
Colley	Lebo	Central eastern	613	Ness (see Eureka Ranch)		Central western	
Comanche (see Englewood)		Central southern		Norton (see Colby)		Northwestern	
Cowley (see Wichita)		do.		Osage (see Lebo and Topeka)		Central eastern	
Crawford (see Columbus)		Southeastern		Osborne (see Ottawa)		Central northern	
Decatur (see Colby)		Northwestern		Ottawa	Minneapolis	Central	608
Dickinson (see McPherson and Minneapolis)		Central		Pawnee (see Macksville)		do.	
Doniphan (see Atchison)		Northeastern		Phillips (see Concordia)		Central northern	
Douglas (see Topeka)		do.		Pottawatomie (see Agricultural College)		Northeastern	
Edwards (see Dodge City and Macksville)		Central southern		Pratt (see Macksville)		Central southern	
Elk (see Independence)		Southeastern		Rawlins (see Colby)		Northwestern	
Ellis (see Eureka Ranch)		Central		Reno	Hutchinson	Central southern	617
Ellsworth (see McPherson)		do.		Republic (see Concordia)		Central northern	
Finney	Garden City	Central western	614	Rice (see Macksville)		Central	
Ford	Dodge City	Southwestern	615	Riley	Agricultural College	Northeastern	609
Franklin (see Lebo)		Central eastern		Rooks (see Eureka Ranch)		Central northern	
Geary (see Agricultural College)		do.		Rush (see Macksville)		Central	
Gove (see Eureka Ranch)		Central western		Russell (see Eureka Ranch and Minneapolis)		do.	
Graham (see Eureka Ranch)		Northwestern		Saline (see McPherson and Minneapolis)		do.	
Grant (see Viroqua)		Southwestern		Scott (see Garden City)		Central western	
Gray (see Dodge City)		do.		Sedgwick	Wichita	Central southern	618
Greely (see Wallace)		Central western		Seward (see Englewood)		Southwestern	
Greenwood (see Lebo and Independence)		Southeastern		Shawnee	Topeka	Northeastern	610
Hamilton (see Garden City)		Central western		Sheridan (see Colby)		Northwestern	
Harper (see Wichita)		Central southern		Sherman (see Colby)		do.	
Harvey (see Hutchinson)		do.		Smith (see Concordia)		Central northern	
Haskell (see Dodge City)		Southwestern		Stafford	Macksville	Central southern	616
Hodgeman (see Dodge City)		Central western		Stanton (see Viroqua)		Southwestern	
Jackson (see Topeka)		Central eastern		Stevens (see Viroqua)		do.	
Jefferson (see Atchison and Topeka)		Northeastern		Sumner (see Wichita)		Central southern	
Jewell (see Concordia)		Central northern		Thomas	Colby	Northwestern	605
Johnson (see Topeka)		Central eastern		Trego	Eureka Ranch	Central western	619
Kearney (see Garden City)		Central western		Wabauisee (see Topeka)		Central eastern	
Kingman (see Hutchinson and Wichita)		Central southern		Wallace	Wallace	Central western	611
Kiowa (see Dodge City)		do.		Washington (see Concordia)		Central northern	
Labette (see Columbus and Independence)		Southeastern		Wichita (see Garden City)		Central western	
Lane (see Garden City)		Central western		Wilson (see Independence)		Southeastern	
Leavenworth (see Atchison)		Northeastern		Woodson (see Lebo)		do.	
				Wyandotte (see Atchison)		Northeastern	

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—		
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Colby	1	51	67	35	108	August, 1902	-31	February, 1899	53	160
Concordia	2	53	64	42	106	July, 1898	-25	January, 1888	42	119
Atchison	3	53	65	44	108	July, 1901	-25	February, 1899	37	113
Minneapolis	4	54	66	41	109	August, 1897	-29	do.	64	129
Agricultural College	5	53	67	42	115	July, 1890	-32	do.	62	122
Topeka	6	54	65	43	105	July, 1901	-25	do.	36	113
Wallace	7									
McPherson	8	55	67	42	110	July, 1901	-27	February, 1899	57	115
Lebo	9	55	66	44	109	do.	-26	do.	46	111
Garden City	10	54	70	39	112	August, 1902	-32	do.	63	144
Dodge	11	54	66	42	108	July, 1876	-26	do.	48	124
Mackville	12	54	68	41	112	July, 1894	-17	February, 1903	58	127
Hutchinson	13	56	69	43	109	September, 1893	-24	February, 1899	62	114
Wichita	14	56	67	46	106	August, 1896	-22	do.	47	97
Eureka Ranch	15	53	67	38	111	July, 1894	-29	do.	68	145
Viroqua	16	55	71	39	111	July, 1896	-15	March, 1903	73	136
Englewood	17	56	72	40	113	June, 1893	-24	February, 1899	78	137
Independence	18	57	70	46	111	July, 1901	-21	do.	74	94
Columbus	19	56	68	45	110	do.	-24	do.	49	100

STATE SUMMARY—Continued.

Station.	Num- ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring					
						<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
Colby.....	1	Oct. 1	May 3	Sept. 7	May 26	18.7	5.4	9.2	2.8	1.2
Concordia.....	2	Oct. 14	Apr. 24	Sept. 27	May 19	26.8	8.5	10.9	5.4	2.0
Atchison.....	3	Oct. 18	Apr. 13	Sept. 29	May 3	37.1	11.3	14.2	7.7	3.9
Minneapolis.....	4	Oct. 10	May 1	Sept. 19	May 23	24.4	7.1	10.1	5.2	2.0
Agricultural College.....	5	Oct. 13	Apr. 23	Sept. 28	May 20	30.5	8.6	12.6	6.6	2.7
Topeka.....	6	do.	Apr. 8	do.	May 19	34.0	9.9	14.2	6.5	3.5
Wallace.....	7	Sept. 29	Apr. 27	Sept. 7	May 6	15.1	3.7	7.8	2.4	1.2
McPherson.....	8	Oct. 20	Apr. 19	Sept. 28	May 18	32.1	9.2	12.8	6.9	3.2
Lebo.....	9	do.	Apr. 12	Oct. 6	May 2	38.2	11.1	14.3	8.6	4.2
Garden City.....	10	Oct. 4	May 2	Sept. 7	May 26	19.6	5.6	8.5	3.1	2.3
Dodge.....	11	Oct. 15	Apr. 17	Sept. 23	May 11	20.3	5.9	9.1	3.5	1.8
Mackville.....	12	Oct. 3	May 1	Sept. 20	May 26	22.9	6.5	9.3	5.3	1.8
Hutchinson.....	13	Oct. 15	Apr. 10	Sept. 23	May 3	28.2	7.2	11.4	6.6	3.0
Wichita.....	14	Oct. 18	Apr. 8	do.	Apr. 30	30.4	9.6	11.2	6.5	3.1
Eureka Ranch.....	15	Sept. 30	May 5	Sept. 12	May 26	20.3	5.9	8.3	4.0	2.2
Viroqua.....	16	Oct. 22	Apr. 17	Sept. 23	May 2	17.6	4.5	7.8	3.4	2.0
Englewood.....	17	Oct. 19	Apr. 13	Sept. 18	May 25	20.6	5.5	9.0	4.2	1.9
Independence.....	18	Oct. 26	Apr. 11	Oct. 1	May 20	37.1	11.0	12.2	8.2	5.7
Columbus.....	19	Oct. 25	Apr. 6	Oct. 9	Apr. 13	44.6	14.3	14.7	9.0	0.5

KANSAS.

Western Division: THOMAS COUNTY. Station: COLBY.

CHARLES BUSCHOW, Observer.

[Established by Signal Service, December, 1887. Latitude, 39° 24' N. Longitude, 101° 2' W. Elevation, 3,133 feet.]

Station was opened with Mr. Chas. E. Bennett, observer. The instrumental equipment consisted of a standard minimum thermometer, and a small 3 inch rain gage. Mr. Bennett moved in August, 1889, and the station was closed until it was reopened by the Weather Bureau in December, 1892.

This station is located at the southwestern limits of the town on ground slightly higher than the rest of the town. The thermometer shelter stands 63 feet from the house, a little east of south. The thermometers are 5 feet 6 inches above sod. The rain gage is 66 feet from the house, a little west of south, and is over 100 feet from other buildings, and 22 feet from the nearest tree. The top of the rain gage is 3 feet 1 inch above ground.

The mean temperature was obtained from the tri-daily readings to July 31, 1889, but since January 1, 1893, from the maximum and minimum readings, only the latter being used now.

Tabulated data for period from January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 30	° F. 45	° F. 74	° F. 16	° F. -21	° F. 37	° F. 24	In. 0.4	3	In. T.	In. 0.5	In. 3.5	In. 6.0	NW.
January.....	29	44	72	14	-26	34	24	0.2	2	T.	0.2	1.6	2.5	NW.
February.....	27	41	77	12	-31	37	16	0.7	4	0.2	0.6	5.8	6.0	NW.
Winter mean.....	29	43		14				1.3	9	0.2	1.3	10.9		NW.
March.....	38	54	89	22	-11	42	34	0.8	4	0.0	2.1	4.5	10.0	NW.
April.....	51	67	95	35	8	54	48	2.2	6	0.5	4.0	1.1	3.0	NW.
May.....	61	76	100	45	17	64	57	2.4	6	2.1	1.7	0.0	0.0	SE.
Spring mean.....	50	66		34				5.4	16	2.6	7.9	5.6		NW.
June.....	70	86	106	54	35	74	64	3.2	8	1.7	4.7	0.0	0.0	SE.
July.....	76	92	107	59	43	82	70	2.8	7	2.5	1.8	0.0	0.0	SE.
August.....	75	91	108	59	41	79	71	3.2	6	1.4	4.8	0.0	0.0	S.
Summer mean.....	74	90		57				9.2	21	5.6	11.3	0.0		SE.
September.....	65	81	107	49	25	69	61	1.4	4	0.9	3.2	0.2	2.0	S.
October.....	53	70	99	36	12	58	47	1.0	3	0.2	5.5	0.6	3.0	N.
November.....	39	55	81	23	-11	43	33	0.5	2	0.2	1.2	0.8	2.0	N.
Fall mean.....	52	69		36				2.9	9	1.3	9.9	1.6		N.
Annual mean.....	51	67	108	36	-31			18.8	55	9.7	30.4	18.1	10.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6-9, 23, 24; Feb. 1, 11-13, 15, 19, 20, 22-24; Dec. 26-29, 31.	June 30; July 18, 23-27, 29, 30; Aug. 13, 18.	1900	Jan. 2, 28; Feb. 8, 13, 15-17; Dec. 29, 31.	June 27, 30; July 2, 3, 6, 9-14, 18; Aug. 10-14, 17-21.
1895	Jan. 1, 3, 4, 8, 25-28, 30; Feb. 1, 3, 5-9, 11-13, 15, 16; Mar. 14, 16; Nov. 26; Dec. 3.	May 27, 28; June 24; Sept. 10, 11, 14.	1901	Jan. 1, 2, 5, 10, 11; Feb. 4-6, 10-13; Mar. 31; Dec. 13-15, 17.	June 23-30; July 3, 4, 7-12, 14-17, 19-21, 24, 27, 28; Aug. 2, 6, 23, 25.
1896	Jan. 3, 4; Nov. 27-29.	June 14; Aug. 3, 7, 9, 10, 14, 15.	1902	Jan. 25-28, 30, 31; Feb. 2, 4, 5; Dec. 4, 15, 17, 31.	June 10, 11; July 14-16, 25; Aug. 1-4, 16, 17.
1897	Jan. 24-29; Mar. 14; Dec. 3, 4, 16-18, 20, 21.	July 7, 8, 29-31.	1903	Jan. 11, 12; Feb. 4, 5, 7, 13-17; Mar. 1, 8; Nov. 18.	July 9, 20; Aug. 23; Sept. 2.
1898	Jan. 26; Mar. 23; Nov. 10, 21, 22; Dec. 9, 10, 21.	July 22, 26; Aug. 15, 19, 20, 22, 29.			
1899	Jan. 1, 6, 29-31; Feb. 1-12, 23, 26, 27; Dec. 14.	June 18, 19; July 5; Aug. 16, 18, 19, 21, 25, 27-30; Sept. 2, 4-6.			

KANSAS.

Northern District: CLOUD COUNTY. Station: Concordia.

J. W. BYRAM, Observer.

[Established by Signal Service May 1, 1885. Latitude, 39° 35' N. Longitude, 97° 41' W. Elevation, 1,376 feet.]

This station is, and has been since its establishment, located on the second floor of the building at 204 West Sixth street. The city of Concordia is situated in the immediate valley of the Republican River, at the base of a range of hills to the south.

The thermometers in use at this station are exposed in a standard roof instrument shelter at an elevation of 10.2 feet above the roof, and 41.5 feet above the ground. The rain gage is placed on the roof at a point about 20 feet north of the instrument shelter and 9 feet back from the north edge of roof. Its elevation is 34 feet above the ground. The anemometer is attached to a cross-arm fastened to the wind vane support. Its elevation is 47 feet above the ground, and the exposure is good.

Tabulated data are from the following periods of observation: Humidity, fifteen years, 1889-1903. Remainder of data is from the full period of observation, eighteen and one-half years, May 1, 1885, to December 31, 1903.

MONTHLY, SEASONAL AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 3 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	32	42	72	23	-10	42	25	0.5	4	In.	In.	In.	In.	P. ct.	Gr.	P. ct.	Gr.	S.
January.....	26	35	72	16	-25	34	11	0.7	5	0.5	0.3	5.3	9.0	82	1.01	72	1.33	N.
February.....	28	38	79	18	-25	37	17	0.8	6	1.9	0.8	5.5	7.8	83	1.07	71	1.43	N.
Winter mean.....	29	38	.....	19	.....	.....	.....	2.0	15	2.4	1.2	13.1	.....	82	1.14	71	1.45	N.
March.....	50	51	93	28	-2	47	33	1.5	7	0.4	1.2	5.4	12.0	81	1.55	64	1.96	N.
April.....	55	67	100	43	18	61	51	2.3	9	0.7	3.3	0.6	3.0	77	2.63	55	3.06	S.
May.....	63	74	100	52	27	68	56	4.7	12	1.0	13.2	0.0	0.0	80	4.15	59	4.71	S.
Spring mean.....	52	61	.....	41	.....	.....	.....	8.5	33	2.1	17.7	6.0	.....	79	2.78	59	3.24	S.
June.....	73	84	104	62	11	77	67	4.3	10	3.9	4.0	0.0	0.0	82	5.75	60	6.25	S.
July.....	78	90	106	66	16	86	73	3.7	9	1.0	5.2	0.0	0.0	79	6.30	56	6.92	S.
August.....	76	87	104	61	41	82	72	2.9	8	5.0	4.3	0.0	0.0	82	5.94	58	6.54	S.
Summer mean.....	76	87	.....	64	.....	.....	.....	10.9	27	9.9	13.5	0.0	.....	81	6.00	58	6.57	S.
September.....	68	80	104	56	29	75	63	2.4	7	0.9	1.8	0.0	0.0	80	4.44	59	5.02	S.
October.....	56	69	93	44	20	62	51	2.2	6	0.7	2.9	0.1	1.7	79	2.80	60	3.22	S.
November.....	41	51	82	30	-15	49	34	0.8	4	1.2	1.1	1.5	7.8	80	1.76	66	2.10	S.
Fall mean.....	55	67	.....	43	.....	.....	.....	5.4	17	2.8	5.8	1.6	.....	80	3.00	62	3.45	S.
Annual mean.....	53	64	106	42	-25	.....	.....	26.8	87	17.2	38.2	20.7	12.0	80	3.23	61	3.68	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-25; Feb. 12-15, 19; Dec. 27, 28.	July 23, 25, 26; Aug. 11, 13.	1900	Feb. 8, 9, 15-17.....	June 26, 27; July 6, 12; Aug. 14, 16, 17, 20, 21.
1895	Jan. 8, 12, 13, 26; Feb. 1, 3-8; Mar. 14.	May 8; June 23, 24; July 15, 16, 27; Aug. 27, Sept. 15-18.	1901	Jan. 1, 2; Feb. 4, 5, 9, 10; Dec. 13-15, 17, 19, 20.	June 28, 29; July 1, 3, 4, 7-16, 20-25; Aug. 1, 2, 5.
1896	Jan. 3; Nov. 28.....	Aug. 10, 14, 15.	1902	Jan. 26, 27, 30, 31; Feb. 2-5, 10; Dec. 26.	Apr. 20; Aug. 2-4, 17.
1897	Jan. 24-28; Feb. 26; Dec. 16-18.	June 16, 21; July 7-9, 29-31; Aug. 1, 2; Sept. 1.	1903	Feb. 16-18.....	None.
1898	Nov. 23; Dec. 9, 31.....	July 19, 27; Aug. 20-22, 28-30; Sept. 4, 5.			
1899	Jan. 29-31; Feb. 1, 2, 4, 5, 7-13, 23, 27.	Aug. 10, 12, 22; Sept. 4-6.			

NORTH CENTRAL DISTRICTS.

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KANSAS.

Eastern Division: ATCHISON COUNTY. Station: ATCHISON.

E. B. KNERR, Observer.

[Established by the Weather Bureau September, 1891. Latitude, 39° 35' N. Longitude, 95° 8' W. Elevation, 973 feet.]

This station is in the northern part of the city on high ground, being 200 feet above the Missouri River. The general character of the country is hilly.

The thermometers and rain gage are standard Weather Bureau instruments. The thermometer shelter stands 25 feet northwest of the residence and 4.5 feet above sod. The rain gage is 50 feet from the house and on an open lawn with its top 3.5 feet above the ground. The mean temperatures are calculated from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 31	° F. 44	° F. 69	° F. 25	° F. - 9	° F. 40	° F. 25	In. 1.6		In. 1.0	In. 2.1	In. 5.1	In. 6.0	NW.
January.....	28	37	70	19	-17	34	22	1.1	5	0.5	3.4	5.6	9.0	NW.
February.....	27	36	78	18	-25	36	18	1.2	6	1.8	1.9	7.9	10.0	NW.
Winter mean.....	29	39		21				3.9	17	3.3	7.4	18.6		NW.
March.....	40	51	91	30	- 1	46	32	2.2	7	3.4	3.9	4.1	6.0	NW.
April.....	55	67	95	44	14	60	52	3.6	9	5.5	3.2	1.5	4.0	z.z.
May.....	64	76	94	54	31	69	58	5.5	12	1.4	10.3	0.0	0.0	z.z.
Spring mean.....	53	65		43				11.3	28	10.3	17.4	5.6		z.
June.....	73	84	102	62	44	75	68	4.6	11	1.1	7.2	0.0	0.0	z.
July.....	77	88	108	66	49	87	74	5.0	8	2.1	3.1	0.0	0.0	z.z.
August.....	76	88	103	65	44	79	73	4.6	8	2.9	3.4	0.0	0.0	SE.
Summer mean.....	75	87		64				14.2	27	6.1	13.7	0.0		z.
September.....	69	80	109	57	31	75	63	3.7	8	2.6	7.4	0.0	0.0	z.
October.....	58	76	97	42	20	64	52	2.7	6	2.6	2.6	0.5	4.0	z.z.
November.....	45	56	82	34	0	49	37	1.3	5	1.5	1.3	0.9	3.0	NW.
Fall mean.....	57	71		47				7.7	19	6.7	11.3	1.4		z.
Annual mean.....	53	65	108	44	-25			37.1	91	26.4	49.8	25.6	10.0	z.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-26; Feb. 15....	July 24; Aug. 10-13, 16.	1900	Jan. 28, 31; Feb. 9, 15-17.	Aug. 21.
1895	Jan. 8, 12, 13, 26, 30; Feb. 1-8.	None.	1901	Jan. 1; Feb. 4, 5, 10; Dec. 14, 15, 18-20.	June 28, 29; July 3, 4, 8, 14, 16-25; Aug. 25.
1896	Jan. 3; Nov. 30.....	Aug. 7, 8, 15.	1902	Jan. 28, 27, 30; Feb. 2-6, 9; Dec. 28.	None.
1897	Jan. 24-29; Feb. 26; Mar. 13; Dec. 16, 18.	Aug. 1.	1903	Jan. 12; Feb. 16-19; Dec. 13.	Do.
1898	Nov. 23; Dec. 9, 13, 31.	None.			
1899	Jan. 28-31; Feb. 4, 5, 7-13, 23.	Sept. 5.			

KANSAS.

Middle Division: OTTAWA COUNTY. Station: MINNEAPOLIS.

J. L. STEELE, Observer.

[Established by Signal Service June, 1889. Latitude, 39° 7' N. Longitude, 97° 41' W. Elevation, 1,259 feet.]

The general contour of the country is rolling.

This station was equipped with Weather Bureau maximum and minimum thermometers in November, 1892.

The instrument shelter stands 36 feet northwest of the house, and the thermometers are 5 feet 7 inches above ground. The rain gage is located 114 feet northwest of the house and is 50 feet from any outbuildings. Its top is 32 inches above ground. The only trees anywhere near it are small, only about 8 feet high.

Previous to January 1, 1893, the temperature means were obtained from the tridaily readings, since that time from the readings of the maximum and minimum thermometers, both series being combined in the general mean.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	32	43	72	21	-10	39	24	0.6	3	T.	0.8	2.3	6.0	N.	N.
January.....	28	40	67	18	-20	34	23	0.5	3	1.4	0.6	3.8	5.1	N.	N.
February.....	28	38	78	17	-29	36	17	0.9	4	0.2	0.2	5.0	11.0		
Winter mean.....	29	40	.....	19	.....	.....	.....	2.0	10	1.6	1.6	11.1	.....	N	
March.....	40	52	95	28	- 2	46	34	1.2	4	0.1	1.0	3.2	7.0	NW.	SE.
April.....	55	63	99	39	15	61	51	2.2	7	1.6	0.3	0.7	4.5	S.	S.
May.....	64	76	101	52	29	70	57	3.7	9	1.9	4.5	0.0	0.0		
Spring mean.....	53	64	.....	40	.....	.....	.....	7.1	20	3.5	5.8	3.9	.....	S.	
June.....	74	86	108	62	41	78	68	4.0	7	2.9	10.3	0.0	0.0	S.	S.
July.....	79	92	108	66	49	86	74	2.8	6	0.1	2.4	0.0	0.0	S.	S.
August.....	77	91	109	65	41	83	73	3.2	6	7.7	8.0	0.0	0.0	SE.	
Summer mean.....	77	90	.....	64	.....	.....	.....	10.1	19	10.7	20.7	0.0	.....	S.	
September.....	69	82	105	56	29	75	64	2.5	5	0.9	3.2	0.0	0.0	S.	S.
October.....	57	71	92	43	20	61	52	2.0	5	0.5	2.3	0.1	1.0	S.	S.
November.....	41	53	78	29	- 4	47	35	0.7	3	0.8	1.9	0.9	6.0	N.	
Fall mean.....	56	69	.....	43	.....	.....	.....	5.2	13	2.2	7.4	1.0	.....	S.	
Annual mean.....	54	66	109	41	-29	.....	.....	24.4	62	18.0	35.5	16.0	11.0	S.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6, 7, 23-25; Feb. 12-15; Dec. 27, 28.	June 27, 30; July 12, 17-19, 23-27, 30, 31; Aug. 1, 9-13, 17-20, 28, 30.	1899	Jan. 29-31; Feb. 1-13, 23.	July 26, 28; Aug. 1-3, 7-12, 22, 23, 28; Sept. 4-6.
1895	Jan. 8, 12, 13, 26, 27, 30; Feb. 1, 4-8, 11, 13.	May 8, 28; June 23; July 15, 16, 27, 28; Aug. 27; Sept. 11-18.	1900	Feb. 9, 16, 17; Dec. 31..	June 21, 26, 27, 29; July 3, 6, 10-12, 19, 22; Aug. 12-21; Sept. 5, 7, 8.
1896	Jan. 3.....	June 14, 20; July 15; Aug. 3, 5, 7-10, 13-15.	1901	Jan. 1, 2; Feb. 4, 5, 9, 10, 12, 13; Dec. 14, 15, 17, 19, 20.	June 24-30; July 1-4, 6-16, 19-28, 31; Aug. 1-3, 24, 25, 28.
1897	Jan. 24, 25, 27, 29.....	June 16-19, 21-23; July 1-3, 6-9, 22-24, 27-31; Aug. 1-3, 25, 28; Sept. 1, 5.	1902	Jan. 26, 27, 30; Feb. 2-5, 7, 10; Dec. 17, 18.	Aug. 2-4, 7, 13, 17.
1898	Jan. 26; Nov. 23; Dec. 9.	June 24, 29; July 18, 19, 22, 24, 26-29; Aug. 5, 15, 16, 19-23, 25, 26, 28-30; Sept. 1, 4, 5.	1903	Jan. 12; Feb. 16-18.....	July 22.

KANSAS.

Eastern Division: VALLEY OF THE KAW (RILEY COUNTY). Station: AGRICULTURAL COLLEGE.

J. O. HAMILTON, Observer.

[Established by the State of Kansas late in 1857. Latitude, 39° 11' N. Longitude, 96° 35' W. Elevation, 1,100 feet.]

The station is situated at the Manhattan Agricultural College, which is west of the city of Manhattan, on ground that is slightly higher than the city. The general contour of the country is best described as hill and valley.

This station has a full set of standard meteorological instruments, including barograph and thermograph.

The thermometer shelter (standard) stands southwest of the college, in an open field, over grass, 200 yards from any building and 100 feet from a low hedge. It stands on a post, to facilitate electric contact, and its top is 8 feet above ground.

The mean temperature was calculated from the tridaily observations until June, 1893. Since that time the means have been calculated from the readings of the maximum and minimum thermometers, the two series being combined in the general mean.

The mean maximum and mean minimum are computed for the period from 1891 to 1903.

The average number of days with maximum above 90° and average number of days with minimum below 32° was obtained from a period of eight years' observation.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days, with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	45	75	23	-16	42	20	0.8	3	0.5	0.5	2.8	5.5	SW.
January.....	26	40	74	18	-26	38	12	0.8	3	0.6	0.0	4.4	8.0	SW.
February.....	30	40	72	18	-32	40	18	1.1	4	1.8	0.6	7.7	18.0	SW.
Winter mean.....	29	42		20				2.7	10	2.9	1.1	14.9		SW.
March.....	40	54	95	28	-9	51	25	1.4	4	1.5	4.0	5.0	8.0	SW.
April.....	54	71	98	44	17	62	47	2.8	6	0.1	7.5	0.7	3.0	NW.
May.....	64	78	101	54	29	70	58	4.4	9	1.1	5.7	0.0	0.0	SW.
Spring mean.....	53	68		42				8.6	19	2.7	17.2	5.7		SW.
June.....	73	87	109	62	37	80	61	4.4	8	2.7	4.6	0.0	0.0	S.
July.....	78	91	115	66	40	87	72	4.7	8	2.1	5.7	0.0	0.0	S.
August.....	76	92	110	64	40	84	70	3.5	7	2.9	10.7	0.0	0.0	SW.
Summer mean.....	76	90		64				12.6	23	7.7	21.0	0.0		S.
September.....	68	85	109	58	25	74	60	3.0	5	1.3	3.1	0.0	0.0	SW.
October.....	55	72	96	44	11	64	44	2.3	5	0.4	1.6	0.2	1.0	SW.
November.....	40	53	96	29	-9	49	31	1.3	3	1.6	1.8	1.2	5.0	SW.
Fall mean.....	54	70		44				6.6	13	3.3	6.5	1.4		SW.
Annual mean.....	53	67	115	42	-32			30.5	65	16.6	45.8	22.0	18.0	SW.

September incomplete—11 days only.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894		July 23-28, 30, 31; Aug. 1, 9-13, 16-20, 29; Sept. 7.	1898	Nov. 23.	July 19; Aug. 21, 23, 29, 30; Sept. 4.
1895	Jan. 8, 11-13, 26, 27, 30; Feb. 1-8.	May 8, 9, 28; June 24; July 15-18, 26, 27, 29; Sept. 13, 15-18.	1899	Jan. 28-31; Feb. 4, 5, 7-13, 23.	Aug. 3, 23; Sept. 4-6.
1896	Jan. 3, 4.	July 3, 15; Aug. 3-5, 7-10, 14, 15.	1900	Feb. 9, 16, 17; Mar. 1.	June 27; July 14, 17-21; Sept. 5, 8.
1897	Jan. 24-27, 29; Mar. 14.	June 16-19; July 8, 9, 22-24, 29-31; Aug. 1-3, 25, 27; Sept. 1, 4, 5.	1901	Missing.	Missing.
			1902	Do.	Do.
			1903	Jan. 12; Feb. 16-18.	June 29; July 8-10, 20, 21, 26; Aug. 5, 25.

KANSAS.

Eastern Division: VALLEY OF THE KAW (SHAWNEE COUNTY). Station: TOPEKA.

T. B. JENNINGS, Section Director.

[Established by Signal Service October, 1886. Latitude, 39° 3' N. Longitude, 95° 41' W. Elevation, 998 feet.]

The valley along the river in this county is about 3 miles wide, the river generally running very close to the bluffs on the south side. The county is rolling prairie and ranges from 1,000 to 1,100 feet above sea level.

The station was originally located at Washburn College. The thermometer shelter stood 200 feet southwest of Science Hall and some distance from other buildings. It stood over sod, with the thermometers 4 feet above ground. The rain gage was located in the campus, about 300 feet from the buildings, with its top 6 inches above ground. The station was moved to the fourth floor of the Columbian Building June 1, 1892.

The thermometers are in a standard roof shelter, 10 feet above the roof and 85 feet above the ground. The roof is nearly flat. The rain gage is near the middle of the roof and is 73 feet above ground. The anemometer cups are 89 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS JUNE 1, 1887, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.					Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.			
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	11r.	P.ct.	S.
December.....	34	43	74	24	-10	45	26	1.0	6	0.4	0.9	4.4	6.0	160	54	NW.
January.....	29	39	70	19	-23	34	17	1.0	6	0.7	0.4	4.7	7.5	182	60	NW.
February.....	29	40	78	19	-25	37	19	1.6	7	1.3	1.1	7.2	18.7	169	56	NW.
Winter mean.....	30	40	74	20	-18	38	20	3.5	19	2.5	2.5	16.3	18.7	510	57	NW.
March.....	41	53	91	30	-1	49	35	2.1	8	1.2	1.3	3.1	5.5	213	57	N.
April.....	56	68	97	44	20	63	52	2.6	10	3.0	3.1	1.0	6.9	233	59	E.
May.....	64	75	94	53	30	70	60	5.2	13	1.9	8.6	0.0	0.0	271	61	E.
Spring mean.....	54	65	94	42	18	60	50	9.9	31	6.0	13.0	4.1	0.0	716	59	S.
June.....	73	84	101	62	36	78	68	4.8	11	7.0	4.9	0.0	0.0	282	63	S.
July.....	79	89	106	67	50	87	72	4.8	9	2.7	3.7	0.0	0.0	327	72	S.
August.....	76	87	105	65	40	80	72	4.6	9	0.4	12.7	0.0	0.0	307	73	S.
Summer mean.....	76	87	104	65	42	82	74	14.2	29	10.2	21.3	0.0	0.0	916	69	S.
September.....	68	80	104	57	33	75	63	3.3	8	3.6	2.7	T.	T.	239	64	S.
October.....	58	70	93	45	22	63	53	2.1	6	2.0	3.5	0.1	1.8	227	66	S.
November.....	42	53	83	31	-5	50	37	1.1	6	0.4	1.1	1.4	9.5	153	51	S.
Fall mean.....	56	68	94	44	18	63	50	6.5	20	5.9	7.3	1.5	0.0	619	60	S.
Annual mean.....	54	65	106	43	-25	60	50	34.1	99	24.6	44.1	21.9	18.7	2,761	61	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-25.....	July 24; Aug. 11, 13.	1900	Feb. 17.....	June 27; Aug. 20.
1895	Jan. 12, 27; Feb. 1, 2, 4-8.	None.	1901	Feb. 5, 10; Dec. 13-15, 17, 19, 20.	July 3, 4, 8-25; Aug. 2, 25.
1896	None.....	Aug. 3, 7, 8, 10, 15, 21.	1902	Jan. 26, 27, 30; Feb. 2-5, 10; Dec. 26.	None.
1897	Jan. 24-27.....	June 19; July 29-31; Aug. 1, 2.	1903	Jan. 12; Feb. 16-18....	Do.
1898	None.....	None.			
1899	Jan. 28-31; Feb. 4, 7-13, 23.	Aug. 23; Sept. 5.			

KANSAS.

Western Division: SMOKY HILL VALLEY (WALLACE COUNTY). Station: WALLACE.

M. T. GRIGGS, Observer.

[Established by Signal Service July, 1890. Latitude, 38° 55' N. Longitude, 101° 37' W. Elevation, 3,303 feet.]

The station is 2½ miles from the town.

The instrument shelter stands 60 feet southwest of the house, and the thermometers are 3 feet above the ground. The rain gage is 80 feet northwest of the house and 125 feet from trees, with the top 3.5 feet above ground.

No temperature means were calculated for this station until the installation of standard maximum and minimum thermometers in December, 1902, since which the mean temperature has been obtained from the readings of those instruments.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Precipitation. (Inches and hundredths.)							Direction of prevailing wind.
	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
					Average depth.	Greatest depth in 24 hours.		
December.....	In. 0.4	3	In. 0.4	In. T.	In. 4.2	In. 10.0	NW.	
January.....	0.2	2	0.1	T.	2.2	4.0	NW.	
February.....	0.4	4	1.4	0.0	5.0	6.0	NW.	
Winter mean....	1.0	9	1.8	T.	11.4	.....	NW.
March.....	0.5	3	0.3	T.	3.2	4.0	NE.	
April.....	1.7	5	0.7	0.6	1.8	5.0	NW.	
May.....	2.6	6	1.8	5.6	0.1	1.0	SE.	
Spring mean....	4.8	14	2.8	6.2	5.1	.....	SE.
June.....	2.3	7	2.0	8.9	0.0	0.0	SE.	

Month.	Precipitation. (Inches and hundredths.)							Direction of prevailing wind.
	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
					Average depth.	Greatest depth in 24 hours.		
July.....	In. 3.5	7	In. 0.8	In. 12.6	In. 0.0	In. 0.0	SE.	
August.....	1.9	13	1.7	2.8	0.0	0.0	SE.	
Summer mean....	7.7	19	4.5	24.3	0.0	.....	SE.
September.....	1.3	3	0.2	1.4	0.1	0.5	SW.	
October.....	0.9	2	0.2	2.0	0.2	2.0	SW.	
November.....	0.4	2	0.1	0.1	0.8	4.0	NW.	
Fall mean.....	2.6	7	0.5	3.5	1.1	.....	SW.
Annual mean....	16.1	49	9.5	34.0	17.6	10.0	NW.	

KANSAS.

Middle Division: McPHERSON COUNTY. Station: McPHERSON.

ED. F. HABERLEIN, Observer.

[Established by Signal Service October, 1890. Latitude, 38° 23' N. Longitude, 97° 36' W. Elevation, 1,495 feet.]

The city stands in a broad level prairie. The station is located near the outskirts of the city.

The maximum and minimum thermometers are in the instrument shelter, 20 feet north of the house, over sod, the thermometers being 6 feet above ground.

The rain gage stands on the ground, 20 feet north of the house and 20 to 30 feet from trees. All instruments are standard.

The temperature means have been obtained from the readings of the maximum and minimum thermometers.

Temperature data begin January 1, 1893, and precipitation data begin October, 1890. Both include the year 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	33	43	77	23	-13	38	26	1.0	3	0.1	0.4	4.4	12.0	SW.
January.....	29	39	70	20	-17	35	23	0.7	3	0.1	0.5	5.3	6.0	NW.
February.....	28	38	78	18	-27	37	18	1.4	3	0.7	3.0	9.7	14.0	NW.
Winter mean.....	30	40	.....	20	.....	.....	.....	3.2	9	0.8	4.0	19.0	.....	NW.
March.....	42	55	91	30	4	46	36	1.6	■	0.5	1.0	1.3	4.0	SW.
April.....	57	70	97	43	■	63	52	2.8	6	0.5	3.2	1.5	12.0	SE.
May.....	65	78	99	52	27	70	63	4.9	0	2.2	10.8	0.0	0.0	SW.
Spring mean.....	54	68	.....	42	.....	.....	.....	9.2	18	3.2	15.0	2.8	.....	SW.
June.....	74	86	106	61	40	78	68	5.6	8	7.7	1.2	0.0	0.0	SE.
July.....	79	92	110	66	52	88	75	3.7	7	2.3	3.0	0.0	0.0	SW.
August.....	79	92	109	66	45	83	74	3.4	6	4.2	6.4	0.0	0.0	SW.
Summer mean.....	77	■	.....	64	.....	.....	.....	12.8	21	14.2	10.6	0.0	.....	SW.
September.....	70	83	104	58	28	72	65	3.4	7	3.5	5.3	0.0	0.0	SW.
October.....	58	72	97	45	25	62	54	2.8	4	0.0	5.3	0.4	4.3	SW.
November.....	43	55	83	31	0	48	36	0.6	2	0.7	1.2	1.4	5.2	SW.
Fall mean.....	57	70	.....	41	.....	.....	.....	6.9	13	4.1	11.8	1.8	.....	SW.
Annual mean.....	55	67	110	42	-27	.....	.....	32.1	61	22.4	41.2	24.0	14.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6, 24, 25; Feb. 12, 13, 15; Dec. 27-29.	July 25-27; Aug. 11-13, 19, 20.	1899	Jan. 29-31; Feb. 1-13.	July 28; Aug. 1-3, 7-9, 11, 12, 19, 22, 23, 26-29; Sept. 4-7.
1895	Jan. 8, 12, 13, 26, 27, 30; Feb. 1, 4-8, 11, 12, 16.	None.	1900	Feb. 16, 17.	June 26, 27; Aug. 12-21; Sept. 6, 7.
1896	Jan. 3.	Aug. 7-11, 14, 15, 21.	1901	Jan. 1; Feb. 4, 5, 9, 12, 13; Dec. 14, 15, 17.	June 21, 25-30; July 1-4, 6-29; Aug. 1-3, 7, 9, 24-28.
1897	Jan. 24-28; Nov. 29.	June 16, 19-24; July 3, 23, 29-31; Aug. 1, 2, 25, 26.	1902	Jan. 26, 27, 30; Feb. 2, 4, 10; Dec. 17.	Aug. 2-4, 7, 13, 14, 16-18.
1898	Dec. 13.	July 27-29; Aug. 21, 23, 28-30; Sept. 3-5.	1903	Jan. 12; Feb. 16-18.	July 9, 10, 14, 20-22.

KANSAS.

Eastern Division: COFFEY COUNTY. Station: LEBOW.

J. J. BOWMAN, Observer.

[Established by Signal Service December, 1886. Latitude, 38° 22' N. Longitude, 95° 52' W. Elevation, 1,168 feet.]

The station is 5½ miles south of the town, in a broad level prairie.

The instrument shelter, in which the maximum and minimum thermometers are placed, stands 25 feet northeast of the house, the thermometers being 4½ feet above ground. The rain gage is in an open lot, 30 feet from trees which are 15 feet high.

The mean temperatures during 1887 and 1888 were obtained from the tridaily observations; since then, from maximum and minimum readings. Both series are combined in the general mean.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	42	74	23	— 6	46	27	1.5	5	1.1	1.6	3.3	5.0	NW.
January.....	29	40	72	20	— 14	35	18	1.1	5	0.4	0.9	3.9	6.0	S.
February.....	30	39	79	18	— 26	38	18	1.6	6	1.8	1.3	6.4	8.0	N.
Winter mean.....	31	40	.....	21	.....	.....	.....	4.2	16	3.3	3.8	13.6	.....	S.
March.....	42	55	92	31	3	48	36	2.5	7	2.3	2.5	1.6	3.0	S.
April.....	56	69	96	44	20	62	52	3.2	9	3.6	3.0	1.4	9.0	S.
May.....	65	78	98	55	31	71	60	5.4	11	1.0	10.3	0.0	0.0	S.
Spring mean.....	55	67	.....	43	.....	.....	.....	11.2	27	6.9	15.8	3.0	.....	S.
June.....	74	85	104	62	43	78	71	5.7	9	3.1	10.0	0.0	0.0	S.
July.....	78	90	109	67	48	86	73	4.0	9	2.1	4.9	0.0	0.0	S.
August.....	77	90	106	65	43	81	74	4.6	7	2.2	12.6	0.0	0.0	S.
Summer mean.....	76	89	.....	65	.....	.....	.....	14.3	25	7.4	27.5	0.0	.....	S.
September.....	69	82	104	57	32	75	63	4.3	8	3.4	5.8	0.0	0.0	S.
October.....	58	71	93	46	25	64	53	2.7	6	1.1	2.7	0.3	3.0	S.
November.....	42	55	88	32	2	50	38	1.6	5	1.1	2.4	0.4	2.0	S.
Fall mean.....	56	69	.....	45	.....	.....	.....	8.6	19	5.6	10.9	0.7	.....	S.
Annual mean.....	55	66	109	43	— 26	.....	.....	38.2	87	23.2	58.0	17.3	9.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-25; Dec. 28...	July 24-26, 28; Aug. 9-14, 17, 19, 20.	1899	Jan. 29-31; Feb. 4, 5, 7-13, 23; Dec. 15.	Aug. 22.
1895	Jan. 12, 13, 26, 27, 30; Feb. 1, 2, 4-8.	June 25; July 4, 27, 29.	1900	Jan. 31; Feb. 16, 17...	June 27; Aug. 21.
1896	None.	July 3; Aug. 3, 6-8, 10, 11, 14, 15, 21.	1901	Dec. 14, 15, 17, 19, 20.	June 29; July 1-4, 7-25; Aug. 2, 3, 25.
1897	Jan. 24-27.	June 19; July 8, 9, 23, 24, 28, 30, 31; Aug. 1-3, 25, 26.	1902	Jan. 26, 27, 30; Feb. 2, 4, 5, 10, 15.	None.
1898	Dec. 13, 14.	None.	1903	Jan. 12; Feb. 16-19...	Do.

KANSAS.

Western Division: FINNEY COUNTY. Station: GARDEN CITY.

B. F. STOCKS, Observer.

[Established by the Weather Bureau May, 1892. Latitude, 37° 58' N. Longitude, 100° 51' W. Elevation, 2,836 feet.]

The general character of the country is quite level. The instrumental equipment consists of standard maximum and minimum thermometers and a rain gage.

The instrument shelter stands 120 feet east of the house, and the thermometers are 5 feet above ground. The rain gage is 135 feet east by south from the house, 75 feet from outbuildings, and 40 feet from trees. The top of the gage is 7 feet above the ground.

The mean temperature has been obtained from the maximum and minimum thermometer readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	31	46	77	17	-17	36	27	0.7	3	1.0	2.0	4.3	6.0	N.W.
January.....	31	46	72	17	-15	36	26	0.4	4	T.	1.6	2.2	5.0	N.W.
February.....	29	44	75	16	-32	37	19	1.3		0.6	0.0	8.1	10.0	
Winter mean.....	31	45		17				2.4	9	1.6	3.6	14.6		N.
March.....	42	59	93	26	-10	46	39	1.0	4	1.2	0.5	2.6	3.5	S.
April.....	55	72	96	38	14	59	53	2.3	4	0.9	1.0	2.5	10.0	S.
May.....	65	80	101	49	28	68	61	2.3	5	0.6	6.5	0.0	0.0	S.
Spring mean.....	54	70		38				5.6	13	2.7	8.0	5.1		S.
June.....	73	88	107	59	37	79	66	3.5	6	2.3	6.4	0.0	0.0	S.
July.....	78	93	108	64	45	84	73	3.0	6	2.2	2.6	0.0	0.0	S.
August.....	78	93	112	63	47	82	73	2.1	4	1.8	2.0	0.0	0.0	S.
Summer mean.....	76	91		62				8.6	16	6.3	11.0	0.0		S.
September.....	69	84	102	54	22	72	65	1.8	3	0.7	4.2	0.0	0.0	S.
October.....	56	73	92	39	19	60	52	0.8	2	0.1	0.4	0.3	2.0	S.
November.....	42	59	83	26	-2	46	39	0.4	2	T.	1.6	1.0	3.0	S.
Fall mean.....	56	72		40				3.0	7	0.8	6.2	1.3		S.
Annual mean.....	54	70	112	39	-32			19.6	45	11.4	28.8	21.0	10.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Y	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6, 7, 23, 24; Feb. 4, 5, 12, 13, 15.	June 30; July 3, 18, 25-27.	1900	Feb. 15, 17; Dec. 31...	June 9, 21, 26-29; July 2, 5, 6, 9, 23; Aug. 11-21; Sept. 1.
a1895	Jan. 3, 8, 25; Feb. 6-8, 11-13, 15, 16; Mar. 14.	May 27, 28; Sept. 11.	1901	Jan. 1-3, 11; Feb. 4, 9; Dec. 14, 15.	June 9, 10, 22-30; July 1, 3, 4, 6-11, 14-21, 24-28, 30; Aug. 1-3, 6, 23-28.
b1896	Jan. 3.....	May 24.	1902	Jan. 26, 27, 30; Feb. 2, 4; Dec. 15-17.	July 14-17, 25, 29, 30; Aug. 1-4, 8, 12-20, 22-25, 29, 30.
b1897	Jan. 24-28; Feb. 15; Dec. 3, 17.	June 21, 22; July 1, 2, 5-8, 29-31; Aug. 1.	1903	Feb. 16, 17, 19; Mar. 1, 2; Nov. 18.	June 30; July 8-10, 14-16, 20-24, 28; Aug. 4, 5, 7, 12, 22.
1898	Nov. 22; Dec. 9, 10...	July 18, 22, 27, 28.			
1899	Jan. 30, 31; Feb. 2-13; Dec. 14, 15.	May 14; June 18, 19; July 6; Aug. 12, 16, 18, 19, 21, 22, 25-30; Sept. 4-6.			

a No record for December, 1895.

b No record from May 26, 1896, to January 23, 1897.

KANSAS.

Southwestern District: ARKANSAS VALLEY (FORD COUNTY). Station: DODGE CITY.

E. D. EMIGH, Observer.

[Established by Signal Service September, 1874. Latitude, 37° 45' N. Longitude, 100° W. Elevation, 2,460 feet.]

Dodge City is situated on the extreme north side of the Arkansas River Valley between the extremities of a crescent of low hills, which extend from due west through the north into the northeast, and approach to within a few hundred yards of the office building.

The river valley at this point being 2½ or 3 miles wide the topography to the southward is of nearly level bottom land.

The thermometers are exposed in a standard roof shelter, 44 feet above ground. The rain and snow gages are located on the roof, unfortunately close to an L angle in a low wall that separates this from the building adjoining on the west. The top of the tipping bucket gage is 3½ feet above the roof and 37 feet above the ground. The rims of the 8-inch gages are just 1 foot lower. The wind vane and anemometer are excellently exposed on an 18-foot combination pole. The anemometer is 54 feet above the ground and the wind vane slightly higher.

Tabulated data are from the following periods of observation: Humidity, fifteen years; snowfall, nineteen years, 1885-1903; sunshine, fourteen years, 1890-1903. Remainder of data is from the full period of observation, twenty-nine years September 15, 1874, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.						Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	33	45	79	21	-15	45	21	0.6	4	0.1	2.7	5.0	78	1.37	59	1.45	186	66	NW.
January.....	28	40	74	17	-20	38	13	0.5	4	T.	0.2	4.4	81	1.15	64	1.35	186	65	NW.
February.....	32	44	78	20	-26	42	20	0.7	6	0.3	1.6	6.2	83	1.18	64	1.51	168	63	NW.
Winter mean.....	31	43	.....	19	.....	.....	.....	1.8	14	0.4	2.4	13.3	81	1.23	62	1.44	180	65	NW.
March.....	42	56	90	29	-9	50	34	0.9	6	T.	0.5	4.0	78	1.51	51	1.80	248	65	NW.
April.....	54	68	93	41	13	60	48	1.8	7	T.	2.4	0.8	66	2.47	46	2.12	270	66	SE.
May.....	64	76	101	52	24	69	58	3.2	10	1.3	12.8	T.	79	3.96	51	3.94	279	64	S.
Spring mean.....	53	67	.....	41	.....	.....	.....	5.9	23	1.3	15.7	4.8	77	2.65	51	2.62	266	65	S.
June.....	73	85	106	61	40	78	66	3.4	11	0.8	1.8	0.0	79	5.18	51	5.24	300	71	SE.
July.....	78	90	108	66	50	82	74	3.2	8	3.3	1.1	0.0	77	5.95	48	5.93	341	74	SE.
August.....	77	89	105	64	46	81	72	2.5	7	1.8	2.4	0.0	79	5.54	52	5.86	341	79	S.
Summer mean.....	76	88	.....	64	.....	.....	.....	9.1	23	5.9	9.3	0.0	78	5.66	50	5.68	327	75	SE.
September.....	68	81	101	56	30	73	64	1.5	5	1.7	3.1	0.0	78	4.19	47	4.00	270	75	S.
October.....	56	70	94	43	10	62	51	1.5	5	0.2	2.2	0.1	78	2.66	51	2.78	279	76	SE.
November.....	41	54	84	29	-13	48	26	0.5	4	0.4	1.0	0.7	77	1.66	57	1.95	210	66	N.
Fall mean.....	55	68	.....	43	.....	.....	.....	3.5	14	2.3	6.3	0.8	78	2.84	51	2.91	253	72	S.
Annual mean.....	54	66	108	42	-26	.....	.....	20.3	74	9.9	33.7	18.9	78	3.07	53	3.16	256	69	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6, 23, 24; Feb. 11, 13; Dec. 27, 28.	June 30; July 1, 3, 23-27, 29.	1900	Feb. 17; Dec. 31.....	June 27; Aug. 12-16, 27.
1895	Feb. 1, 6-8, 11-13, 16..	Sept. 5, 11.	1901	Jan. 1; Feb. 4, 9; Dec. 13-15.	June 9, 21; July 4, 15-17, 19, 21; Aug. 3, 24, 25.
1896	None.....	May 24; June 14, 19; July 29; Aug. 7, 8, 10, 15, 20, 21, 29; Sept. 7, 8.	1902	Jan. 25-27, 29, 30; Feb. 1, 2, 4; Dec. 17.	Aug. 2-4, 17, 18, 20.
1897	Jan. 24, 25, 27; Dec. 3.	July 29; Aug. 1.	1903	Feb. 15-17; Mar. 1....	July 14, 15, 20-22; Aug. 5.
1898	Jan. 26; Dec. 9, 10, 31..	July 22, 27; Aug. 16.			
1899	Jan. 30, 31; Feb. 2-12; Dec. 14, 15.	June 19; Aug. 19, 21, 26, 27.			

KANSAS.

Middle Division: STAFFORD COUNTY. Station: MACKSVILLE.

ROEY POLING, Observer.

[Established by Signal Service January, 1899. Latitude, 37° 58' N. Longitude, 98° 57' W. Elevation, 2,032 feet.]

This station is in the northern part of the town, which stands in a broad level prairie. The thermometer shelter stands 25 feet from a one-story house, with the thermometers 6 feet above the ground.

The rain gage stands 25 feet southwest of the house and with its top 6 feet above the ground.

The mean temperatures up to December, 1890, were obtained from the tri-daily observations, and since April, 1893, were calculated from readings of the maximum and minimum thermometers, only the last series being used in the general mean.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December	35	47	75	22	-15	39	26	0.4	2	0.3	1.2	2.2	5.0	N.
January	30	42	71	19	-16	36	24	0.6	2	0.1	1.0	4.5	6.0	N.
February	31	42	78	18	-17	37	25	0.8	3	0.7	0.5	6.7	8.0	SW.
Winter mean	32	44		19				1.8	7	1.1	2.7	13.4		N
March	41	55	95	28	-5	47	36	0.8	2	0.0	2.2	0.3	1.0	NW.
April	55	69	95	40	11	60	50	2.5	5	T.	0.2	0.8	6.0	SE.
May	64	78	107	51	23	70	60	3.1	7	1.4	3.6	0.0	0.0	SE.
Spring mean	54	67		40				6.5	14	1.4	6.1	1.1		SE.
June	73	86	112	60	39	77	64	3.9	7	4.1	3.5	0.0	0.0	SW.
July	78	92	112	64	45	83	74	3.1	5	2.3	7.1	0.0	0.0	SW.
August	77	92	106	64	42	81	74	2.3	4	2.3	2.4	0.0	0.0	SW.
Summer mean	76	90		63				9.3	16	8.7	13.0	0.0		SW.
September	69	83	104	55	29	74	64	2.2	4	2.0	2.0	0.0	0.0	S.
October	56	73	91	42	23	62	49	2.2	4	T.	4.0	T.	T.	S.
November	44	57	83	30	3	50	37	0.9	2	0.3	2.3	0.2	1.0	N.
Fall mean	56	71		42				5.3	10	2.4	8.7	0.2		S.
Annual mean	54	68	112	41	-17			22.9	47	13.5	30.5	14.7	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6, 23, 24; Feb. 12, 13, 15; Dec. 26-28, 30, 31.	June 18, 27; July 1, 3, 5, 13, 18, 23-30; Aug. 9-13, 18-20; Sept. 1, 2.	1899	Dec. 14, 15	July 13, 20, 23, 24, 27-29.
1895	Jan. 8, 26, 31; Feb. 1, 4, 6-8, 12, 13, 16.	May 28; June 23, 24; July 15-18; Aug. 17-19, 22, 26; Sept. 5, 11, 12, 15, 16, 18.	1900	Feb. 17; Dec. 31	June 28; Aug. 13-18, 21, 22.
1896	None	May 24; June 4, 8, 13, 14, 16, 18-20; July 1-3, 29, 31; Aug. 3, 5, 7, 8, 10, 11, 14, 15, 20, 21, 29; Sept. 2, 7, 8.	1901	Jan. 1, 2; Feb. 4, 5, 9, 10; Dec. 14, 15, 17.	June 22, 29; July 3, 4, 7-9, 11, 13-17, 19-21, 24, 27; Aug. 3, 24, 25.
1897	Jan. 24, 25, 27	July 1, 3, 6-9, 29-31; Aug. 1, 2, 25.	1902	Jan. 26, 27, 30; Feb. 2, 4; Dec. 17.	Aug. 3, 4, 5, 17-19, 21.
1898	No record for winter of 1898-99.	July 27-29; Sept. 4, 5.	1903	Jan. 12; Feb. 16-19; Mar. 1.	July 10, 14, 20-22; Aug. 5.

KANSAS.

Middle Division: RENO COUNTY. Station: HUTCHINSON.

C. BISHOP, Observer.

[Established by Signal Service January, 1880. Latitude, 38° 4' N. Longitude, 97° 55' W. Elevation, 1,535 feet.]

This station is near the central western part of the city, which stands in a broad level plain, with the Arkansas River on the south. The equipment consists of standard maximum and minimum thermometers and a rain gage. The standard thermometer shelter is 50 feet south of the house, and the thermometers are 6 feet above ground. Previous to March, 1900, the thermometers were attached to the south side of the house, under the roof of the porch.

The rain gage is 60 feet from the house, 16 feet from a small tree, 10 feet from a low outbuilding, and stands 7 feet above ground.

Tabulated data are for period from January 1, 1893, to December 31, 1903.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	36	49	80	23	-14	44	29	0.9	3	1.0	2.6	3.9	7.0	N.
January.....	33	47	74	20	-14	39	29	0.6	4	0.1	1.5	4.7	5.0	S.
February.....	32	44	77	19	-24	44	23	1.4	5	1.2	0.5	9.4	10.8	N.
Winter mean.....	34	47		21				2.9	12	2.3	4.6	18.0		N.
March.....	44	58	91	30	2	48	39	1.4	5	0.2	1.8	2.4	4.0	S.
April.....	57	71	99	43	23	63	53	2.4	6	0.3	6.4	0.7	5.0	S.
May.....	66	78	100	53	27	71	62	3.5	10	2.0	3.9	0.0	0.0	S.
Spring mean.....	56	69		42				7.3	21	2.5	12.1	3.1		S.
June.....	74	86	105	61	39	76	66	4.8	9	3.9	5.9	0.0	0.0	S.
July.....	78	91	108	65	50	85	74	3.8	8	3.5	3.2	0.0	0.0	S.
August.....	78	92	107	65	43	81	75	2.8	7	1.7	5.5	0.0	0.0	S.
Summer mean.....	77	90		64				11.4	24	9.1	14.6	0.0		S.
September.....	70	84	109	56	30	75	64	3.0	7	2.1	3.5	0.0	0.0	S.
October.....	60	75	95	45	25	65	56	2.8	6	0.1	1.9	0.0	0.0	S.
November.....	45	58	90	37	5	51	41	0.8	4	0.5	1.1	0.3	1.0	S.
Fall mean.....	58	72		44				6.6	17	2.7	6.5	0.3		S.
Annual mean.....	56	70	109	43	-24			28.2	74	16.6	37.8	21.4	10.8	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24; Feb. 12, 13; Dec. 26, 27, 30.	June 27; July 1, 24-26; Aug. 10, 11, 13, 15, 18-20, 30; Sept. 7.	1900	Feb. 17; Dec. 31.....	June 26, 27, 29; July 7, 10-12; Aug. 12-18, 20, 21; Sept. 6, 7.
1895	Jan. 24; Feb. 1, 4-8, 11.	May 8; Aug. 17; Sept. 12, 16, 17.	1901	Jan. 1; Feb. 4, 5, 9; Dec. 14, 15, 17, 20.	June 21, 26, 28; July 1-4, 6-16, 20-25, 27, 29; Aug. 1-3, 25-28.
1896	None.....	May 24; Aug. 7-16, 20, 21.	1902	Jan. 26, 27, 30; Feb. 2, 4; Dec. 17.	Aug. 2-4, 13, 16-18.
1897	Jan. 24, 26, 27.....	June 21, 24; July 3, 9, 23, 24, 30, 31; Aug. 1, 25, 26.	1903	Jan. 12; Feb. 16-19.....	July 14, 21, 22.
1898	None.....	Data missing. July, Aug. Sept. and Oct.			
1899	Jan. 31; Feb. 4-13.....	Aug. 8, 9, 19, 22, 23, 26.			

KANSAS.

Southern District: SEDGWICK COUNTY. Station: WICHITA.

GEORGE T. TODD, Observer.

[Established by Signal Service July 1, 1888. Latitude, 37° 41' N. Longitude, 97° 20' W. Elevation, 1,301 feet.]

This station is near the central portion of the city of Wichita, and is about one-sixth of the distance between the gradual slope of the Arkansas River and the hills $2\frac{1}{2}$ miles away, which form the eastern boundary of the valley. The elevation of the hills in this vicinity, on either the east or west side of the valley, does not exceed 100 feet. The Arkansas River flows from the northwest to the southeast through the city and the Little Arkansas directly north and south to the junction. The office is located in the Sedgwick block, where it has been since the opening of the station. The instruments are exposed from the nearly level roof of that building. There have been no changes in the position or elevation of instruments since they were first established. The thermometers are 78 feet above the ground, the anemometer 85, and the rain gage 71.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	36	46	74	27	-10	46	28	1.0	5	0.7	0.7	2.6	5.1	79	1.53	65	1.78	N.
January.....	32	42	72	23	-14	37	28	0.8	5	0.2	0.3	3.7	5.2	80	1.30	66	1.56	N.
February.....	32	42	78	22	-22	40	21	1.3	6	0.8	0.8	4.4	7.5	80	1.30	66	1.68	N.
Winter mean.....	33	43	.....	24	.....	.....	.....	3.1	16	1.7	1.8	10.7	.....	80	1.38	66	1.67	N.
March.....	44	55	91	33	3	40	38	1.9	8	1.1	2.8	2.6	6.0	76	1.80	57	2.17	N.
April.....	58	69	98	46	21	64	54	2.8	8	0.2	0.9	0.7	5.9	74	2.91	51	3.13	S.
May.....	66	76	96	55	34	72	62	4.9	11	2.2	10.3	0.0	0.0	78	4.33	52	4.28	S.
Spring mean.....	56	67	.....	45	.....	.....	.....	9.6	27	3.5	14.0	3.3	.....	76	3.01	53	3.19	S.
June.....	74	85	104	64	44	79	69	4.9	8	3.4	7.1	0.0	0.0	80	5.98	57	6.04	S.
July.....	79	90	105	68	53	85	75	3.3	8	5.0	4.1	0.0	0.0	79	6.72	54	6.67	S.
August.....	78	90	106	67	45	82	75	3.0	7	1.5	5.3	0.0	0.0	79	6.10	54	6.09	S.
Summer mean.....	77	88	.....	66	.....	.....	.....	11.2	23	9.9	16.5	0.0	.....	79	6.27	55	6.27	S.
September.....	70	82	104	59	34	75	65	2.9	7	2.1	2.7	0.0	0.0	79	4.69	56	5.08	S.
October.....	60	71	95	48	26	64	55	2.7	6	T.	2.0	T.	0.5	76	3.10	54	3.21	S.
November.....	44	54	83	34	7	51	39	0.9	5	0.9	1.8	1.0	9.0	78	1.92	60	2.12	S.
Fall mean.....	58	69	.....	47	.....	.....	.....	6.5	18	3.0	6.5	1.0	.....	78	3.24	57	3.47	S.
Annual mean.....	56	67	106	46	-22	.....	.....	30.4	84	18.1	38.8	15.0	9.0	78	3.47	58	3.65	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23, 24; Dec. 27, 28.	June 27, 29; July 1, 24, 25; Aug. 19.	1900	Feb. 17.....	June 27; Aug. 13-15, 21.
1895	Jan. 12; Feb. 1, 4-8...	June 24; July 27; Sept. 12.	1901	Dec. 14.....	July 4, 7-9, 11, 13-17, 21, 23, 24; Aug. 25, 26.
1896	None.....	Aug. 3, 7, 8, 10, 11, 14, 15, 20, 21.	1902	Jan. 26, 27, 30; Feb. 2, 4.	Aug. 2-4, 16, 18.
1897	Jan. 24.....	June 21, 24; July 24, 29-31; Aug. 1.	1903	Feb. 16, 17.....	July 21, 22.
1898	None.....	July 29.			
1899	Jan. 29, 30, 31; Feb. 4, 7-13.	Aug. 8, 9, 11, 22, 23, 26.			

KANSAS.

Western Division: TREGO COUNTY. Station: EUREKA RANCH.

BEN C. RICH, Observer.

[Established by Signal Service December, 1883. Latitude, 38° 55' N. Longitude, 96° 44' W. Elevation, 2,520 feet.]

This station is in the open country, the nearest town being 5 miles distant. The prairie is somewhat rolling.

The dry bulb thermometer was attached to the north side of the house. The shelter in which the maximum and minimum thermometers are exposed stands 50 feet southeast of the house. The nearest trees on the south are 80 rods distant, while a small peach orchard stands about 300 feet northeast. The thermometers are 4.5 feet above the ground. The rain gage is located 50 feet southwest of the house. The top of the gage is 2.5 feet above ground. All outbuildings are north of the house.

The temperature means were obtained from tridaily observations (sunrise, noon, and sunset) till April 30, 1893, since which date they have been obtained from the maximum and minimum readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean. ^a	Number of days with 0.01 or more.	Total amount for the driest year. ^a	Total amount for the wettest year. ^a	Snow.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	31	44	72	18	-15	38	25	0.6	3	0.1	1.0	3.1	7.2	NW.
January.....	29	42	72	16	-21	34	24	0.7	4	0.4	0.6	3.6	6.0	ZW.
February.....	28	40	77	15	-29	37	17	0.9	4	0.2	0.6	6.4	8.0	ZW.
Winter mean.....	29	42		16				2.2	11	0.6	2.2	13.1		NW.
March.....	39	55	95	25	-7	44	34	0.8	4	1.4	0.7	2.8	4.0	NW.
April.....	54	69	99	38	10	58	50	2.1	6	0.6	0.4	2.1	9.5	SE.
May.....	63	77	105	48	23	67	55	2.9	7	2.6	4.2	0.0	0.0	S.
Spring mean.....	52	67		38				5.8	17	4.6	5.3	4.9		NW.
June.....	73	88	111	58	34	77	65	3.1	8	1.6	6.5	0.0	0.0	SE.
July.....	79	93	111	63	42	85	74	3.1	6	1.7	2.3	0.0	0.0	S.
August.....	77	93	110	62	41	82	73	2.1	6	1.2	4.4	0.0	0.0	S.
Summer mean.....	76	91		61				8.3	20	4.5	13.2	0.0		S.
September.....	68	83	105	53	24	74	61	2.1	5	0.1	7.2	0.0	0.0	S.
October.....	55	71	93	40	17	61	50	1.3	3	1.0	2.3	0.4	5.0	S.
November.....	40	54	82	26	-6	45	33	0.5	2	0.2	0.0	0.8	3.5	NW.
Fall mean.....	54	69		40				4.0	10	1.4	9.5	1.2		S.
Annual mean.....	53	67	111	38	-29			20.3	58	11.2	30.2	19.2	9.5	NW.

^a Record from January 1, 1883.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6-9, 23, 24; Feb. 11-13, 15, 19, 22-24; Dec. 12, 27-31.	June 18-20, 27, 29, 30; July 12, 14, 18, 23-27, 29, 30; Aug. 8-13, 17-19, 28-30; Sept. 2.	1899	Jan. 29-31; Feb. 2-13, 23; Dec. 14.	May 14; June 18, 19; Aug. 10, 12, 17, 19, 21, 22, 25-30; Sept. 4-6.
1895	Jan. 3, 8, 26, 27; Feb. 1, 3-8, 10-13, 16; Mar. 14; Dec. 3.	May 27, 28; June 23, 24; July 15-18; Aug. 22, 26, 27; Sept. 5, 9-14, 16-18, 20.	1900	Jan. 28; Feb. 16, 17; Dec. 31.	June 6, 7, 27; July 6, 9-13, 15, 22, 31; Aug. 1, 10-21; Sept. 6, 8.
1896	Jan. 3; Nov. 28, 29....	June 13, 14, 16, 18; July 30; Aug. 3, 4, 7, 9, 10, 13-15; Sept. 8.	1901	Jan. 1, 2, 10, 11; Feb. 4-6, 9, 10; Dec. 14-17.	June 23-30; July 1, 3, 4, 6-22, 24-28, 31; Aug. 2, 3, 23-25, 27, 28.
1897	Jan. 24-26; Nov. 29; Dec. 3, 16, 17, 20.	June 16-18, 21-23, 29; July 1, 2, 5-9, 23, 26, 28-31; Aug. 1-3, 25, 27, 28, 31; Sept. 1, 4-6.	1902	Jan. 26-28, 30, 31; Feb. 2-5; Mar. 17; Dec. 4, 15, 17.	May 2; June 10, 11, 13; July 15; Aug. 2-4, 7, 9, 12-14, 16-20.
1898	Nov. 23; Dec. 9, 10, 31.	June 18, 28, 29; July 18, 22-24, 26, 27; Aug. 5, 14, 15, 19-23, 25, 28-30; Sept. 2.	1903	Jan. 12; Feb. 5, 16, 17; Mar. 1; Nov. 18.	July 20, 25, 28; Aug. 22.

KANSAS.

Western Division: SOUTHWESTERN PLATEAU, MORTON COUNTY. Station: VIROQUA.

JOHN A. GORDON, Observer.

[Established by Signal Service in August, 1889. Latitude, 37° 08' N. Longitude, 101° 46' W. Elevation, 3,600 feet.]

The thermometer shelter stands 35 feet northwest of the house and the thermometers are 5 feet above the ground. The rain gage is 45 feet northwest of the house and 40 feet from some trees 10 feet high. The top of the gage is 3.5 feet above ground.

The temperature means were obtained from the tridaily observations till May, 1892, since which they have been calculated from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December	34	48	75	20	-12	41	27	0.7	2	0.7	0.6	5.1	10.0	SW.	
January	33	49	76	19	-12	38	29	0.4	3	0.5	0.6	4.0	6.0	SW.	
February	32	46	78	17	-13	40	24	0.8	3	T.	0.6	8.1	20.0	NE.	
Winter mean	33	48		19				2.0	8	1.1	1.8	17.2		SW.	
March	42	60	91	26	-15	47	35	0.6	2	0.1	0.1	1.6	3.0	SW.	
April	55	72	93	39	15	59	52	1.6	5	1.6	0.6	1.4	3.0	SW.	
May	65	81	105	49	30	71	60	2.2	6	0.7	1.3	0.0	0.0	SE.	
Spring mean	54	71		38				4.5	13	2.4	1.9	3.0		SW.	
June	74	90	111	58	35	78	65	2.5	7	1.6	5.0	0.0	0.0	SE.	
July	78	94	109	63	45	82	75	3.5	7	0.9	12.3	0.0	0.0	SE.	
August	78	93	107	62	48	81	74	1.8	5	0.2	1.3	0.0	0.0	SE.	
Summer mean	76	93		61				7.8	19	2.8	18.7	0.0		SE.	
September	69	84	102	53	28	76	65	1.9	4	2.0	0.0	0.0	0.0	SE.	
October	57	72	92	40	22	60	53	1.2	3	0.8	0.4	0.1	1.0	SW.	
November	43	59	85	27	-1	46	40	0.4	2	0.2	0.6	0.9	3.0	SW.	
Fall mean	56	72		40				3.4	9	3.0	1.0	1.0		SW.	
Annual mean	55	71	111	39	-15			17.6	49	9.3	23.4	21.2	20.0	SW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 6, 7, 24; Feb. 4, 12, 13, 24; Dec. 27, 28.	June 25, 26, 29, 30; July 1-3, 18, 23-27, 29; Aug. 14.	1899	Jan. 30, 31; Feb. 6-9, 11, 12; Dec. 14, 15.	June 12, 18-21; Aug. 9-12, 16-19, 21, 22, 25-30; Sept. 1, 4-6.
1895	Jan. 28, 29; Feb. 1, 7, 8, 12, 13, 15, 16.	May 9, 14, 27, 28; June 23, 24; July 5, 15, 16, 18.	1900	Dec. 31.....	June 21, 26-29; July 9, 10, 22, 23, 28; Aug. 11-17, 20-22, 26, 27.
1896	Jan. 3.....	May 24, 25, 29, 30; June 3-6, 8, 13-20, 24, 30; July 2, 8, 14, 21-23, 25-31; Aug. 2-21, 29.	1901	Jan. 1, 2; Feb. 5, 9; Dec. 14, 15.	June 28, 30; July 3, 4, 17, 19, 28; Aug. 3, 27.
1897	Jan. 24, 26-28; Dec. 3, 4.	June 15-24, 26, 29; July 1-9, 12-15, 23, 26-31; Aug. 1, 2.	1902	Jan. 26-28, 30; Feb. 2; Dec. 4, 15.	June 26; July 14, 15; Aug. 2-4, 8, 9, 12, 13, 15, 17, 18-20; Sept. 7.
1898	Dec. 9, 10, 13, 14, 31....	June 24, 29; July 6, 7, 18, 19, 21-23, 26-28; Aug. 16, 18, 20, 21.	1903	Feb. 16, 17; Mar. 1-3; Nov. 18.	June 30; July 10, 14, 15, 20-24; Aug. 4, 5, 7.

KANSAS.

Western Division: CLARK COUNTY. Station: ENGLEWOOD.

C. D. PERRY, Observer.

[Established by Signal Service September, 1888. Latitude, 37° 02' N. Longitude, 90° 58' W. Elevation, 1,955 feet.]

The station is south of the town and is located in a rather broad shallow valley.

The instrumental equipment consisted of a standard thermometer and a 3-inch rain gage until March, 1893, when the station was given the Weather Bureau voluntary observer's equipment. The instrument shelter is 33 feet east of the house and the thermometers are 4 feet above ground.

The rain gage is 48 feet east of the house and 25 feet from the nearest tree, the top of the gage being 3 feet above ground.

Preceding March, 1893, the temperature means were calculated from the tridaily readings; since March, 1893, they have been obtained from the maximum and minimum readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	51	84	19	- 9	47	26	0.6	2	0.1	0.9	1.9	6.0	N.
January.....	33	49	77	16	-14	39	28	0.6	2	T.	0.8	3.3	10.0	N.
February.....	32	47	80	17	-24	40	23	0.7	3	1.1	0.3	6.4	10.0	N.
Winter mean.....	33	49	.....	17	.....	.....	.....	1.9	7	1.2	2.0	11.6	.....	N.
March.....	45	62	95	28	- 8	48	38	0.8	3	0.5	2.8	2.2	6.0	SW.
April.....	58	74	99	42	16	63	53	2.0	6	0.1	0.3	0.1	0.5	SW.
May.....	66	81	106	51	28	69	61	2.6	9	2.9	5.3	0.0	0.0	NE.
Spring mean.....	56	72	.....	40	.....	.....	.....	5.4	18	3.5	8.4	2.3	.....	SW.
June.....	75	89	113	61	35	80	69	3.4	8	1.8	7.5	0.0	0.0	S.
July.....	80	94	110	66	48	85	76	3.5	7	0.6	6.2	0.0	0.0	S.
August.....	80	94	109	64	44	84	72	2.1	7	2.0	1.5	0.0	0.0	S.
Summer mean.....	78	93	.....	64	.....	.....	.....	9.0	22	4.4	15.2	0.0	.....	S.
September.....	70	86	107	54	28	73	67	1.8	5	2.9	3.7	0.0	0.0	SW.
October.....	59	76	99	42	20	62	53	1.9	4	0.1	4.2	T.	T.	S.
November.....	44	60	89	27	0	49	38	0.5	3	0.2	0.3	0.1	0.8	N.
Fall mean.....	58	74	.....	41	.....	.....	.....	4.2	12	3.2	8.2	0.1	.....	SW.
Annual mean.....	56	72	113	41	-24	.....	.....	20.5	59	12.3	33.8	14.0	10.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23; Feb. 12; Dec. 25, 26.	June 26, 27, 29, 30; July 1-3, 16, 23-29; Aug. 13, 14, 17-20; Sept. 2, 3, 6, 7.	1899	Jan. 30, 31; Feb. 3, 5-12; Dec. 13-15.	June 19, 20; July 31; Aug. 1-4, 6-12, 16-23, 25-30; Sept. 4-6.
1895	Jan. 7, 27, 28, 30, 31; Feb. 1-4, 6-12, 15.	May 27; June 23, 24; July 5, 15-18, 29.	1900	Feb. 16, 17; Dec. 30, 31.	June 7, 26-29; July 6, 8; Aug. 12-16, 20, 21, 27.
1896	Nov. 29.....	May 17, 19, 23, 24, 29, 30; June 3, 4, 8, 13-15, 19, 20; July 3, 23, 26, 29, 31; Aug. 3-5, 7-11, 14-17, 20, 21, 25, 29, 30; Sept. 2, 4, 6-9, 16.	1901	Jan. 1-3; Dec. 13, 14...	June 9, 18, 24-29; July 3, 4, 6, 8-11, 14-17, 19-21, 26, 28; Aug. 3, 23-28.
1897	Jan. 23, 24, 26, 27; Dec. 2, 3.	June 16, 18, 20-24; July 1-4, 6-9, 23, 26-31; Sept. 1, 2, 4, 25, 26.	1902	Jan. 25, 26, 29, 30; Feb. 1, 2; Dec. 16.	July 15; Aug. 2-4, 12-20, 22-25, 29, 30.
1898	Jan. 15, 22; Dec. 9, 12-15, 30.	June 23; July 7, 22, 26-29; Aug. 16, 18-23, 28, 29; Sept. 3-5, 23, 26.	1903	Feb. 16, 17, 19; Mar. 1.	July 10, 14-16, 20-23; Aug. 5, 7.

KANSAS.

Eastern Division: VERDIGRIS VALLEY (Montgomery County). Station: INDEPENDENCE.

J. M. ALTAFFER, Observer.

[Established by the Smithsonian Institution December, 1871. Latitude, 37° 11' N. Longitude, 95° 43' W. Elevation, 816 feet.]

This station is 3.5 miles south, a little east, of the city, with ground comparatively level to the north and west, but lower east and south.

The thermometer shelter stands 50 feet north of the house and over sod, the thermometers being 5 feet above ground. The rain gage is in open ground about 50 feet southwest of the house and stands on the ground.

The temperature means were calculated from the tridaily observations until September, 1890, when standard maximum and minimum thermometers were installed; since which date they have been calculated from readings of the latter, but the general mean is calculated from both sets of readings.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1871, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	S.
December.....	36	46	73	26	- 5	42	31	2.1	5	0.8	1.9	2.3	9.0	
January.....	34	44	75	24	-16	34	28	1.5	6	1.5	1.2	2.9	5.0	NW.
February.....	33	44	78	24	-21	41	24	2.0	6	0.5	7.0	2.4	6.5	NW.
Winter mean.....	34	44		25				5.6	17	2.8	10.1	7.6		NW.
March.....	46	57	93	34	8	51	40	2.4	8	1.5	2.7	1.0	4.0	S.
April.....	59	71	95	47	22	65	56	3.8	9	2.0	2.7	T.	0.2	S.
May.....	68	80	98	56	31	73	65	4.8	11	3.9	6.6	0.0	0.0	S.
Spring mean.....	58	69		46				11.0	28	7.4	12.0	1.0		S.
June.....	77	89	105	65	45	80	71	4.9	9	3.8	11.3	0.0	0.0	S.
July.....	81	94	111	69	54	88	77	4.3	8	3.2	2.5	0.0	0.0	S.
August.....	80	94	110	67	43	84	78	3.0	6	4.6	0.8	0.0	0.0	S.
Summer mean.....	79	92		67				12.2	23	11.6	14.6	0.0		S.
September.....	73	86	109	60	34	77	65	3.7	7	0.7	9.1	0.0	0.0	S.
October.....	61	74	95	48	26	66	55	2.6	6	1.5	6.3	T.	T.	S.
November.....	46	57	82	35	5	52	34	1.9	6	2.6	2.9	T.	0.2	S.
Fall mean.....	60	72		48				8.2	19	4.8	18.3	T.		S.
Annual mean.....	57	70	111	46	-21			37.0	87	26.6	55.0	8.6	9.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-25; Feb. 15; Dec. 27, 28.	June 25, 29, 30; July 1, 13, 18, 23-28, 30, 31; Aug. 8-15, 18-20, 30; Sept. 8.	1898	Dec. 14.	June 25; July 7, 27-29.
1895	Jan. 12; Feb. 2, 4-8.	June 13, 22, 25; July 16-18, 20, 27, 29.	1899	Jan. 29, 31; Feb. 8-13.	Aug. 7-9, 23; Sept. 5-7.
1896	None.	June 19; July 3, 14, 15, 30, 31; Aug. 3-11, 13-16, 20, 21; Sept. 1, 2.	1900	Feb. 17.	Aug. 13-22, 24; Sept. 6.
1897	Jan. 27.	June 19, 21, 22, 30; July 1-4, 7-9, 31; Aug. 1-4, 25, 26, 29; Sept. 4, 5.	1901	Dec. 14, 15.	June 26, 28, 29; July 1-15, 17, 19-25, 28, 29; Aug. 1-3, 9, 25-29; Sept. 7.
			1902	Jan. 27; Feb. 2, 4.	June 26; July 14-17; Aug. 2-5, 7, 14-18.
			1903	Feb. 16, 17.	July 20, 22, 23; Aug. 4, 5, 25, 27.

KANSAS.

Eastern Division: CHEROKEE COUNTY. Station: COLUMBUS.

O. E. SKINNER, Observer.

[Established by Signal Service August, 1890. Latitude, 37° 11' N. Longitude, 94° 50' W. Elevation, 868 feet.]

This station was established by the Signal Service in 1890 as a rainfall station, and in 1891 the Weather Bureau added to its equipment, standard maximum and minimum thermometers.

The country is moderately hilly.

The thermometer shelter is on the north side of and close to the house. The thermometers are 4.5 feet above ground. The rain gage is southwest of and 30 feet from the house. It is 30 feet from outbuildings and 20 feet from the nearest tree. The top is 2.5 feet above ground.

The mean temperature was obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	35	45	78	26	-9	43	30	2.6	6	2.0	10.5	3.9	9.0	N.
January.....	33	43	73	23	-16	37	27	1.8	6	1.1	1.2	4.1	7.0	N.
February.....	32	42	78	22	-24	40	23	2.1	6	1.9	0.1	3.6	5.0	NE.
Winter mean.....	33	43		24				6.5	18	5.0	11.8	11.6		N.
March.....	44	56	89	34	6	49	41	3.4	8	1.7	2.0	1.5	7.0	SW.
April.....	57	69	91	45	20	63	54	4.1	10	4.4	0.5	0.2	1.5	SW.
May.....	66	79	94	55	29	71	64	6.8	12	4.1	4.1	0.0	0.0	S.
Spring mean.....	56	68		44				14.3	30	10.2	5.6	1.7		SW.
June.....	74	86	101	62	44	78	69	6.2	9	4.2	8.7	0.0	0.0	S.
July.....	78	91	110	66	52	86	76	5.0	8	3.2	11.0	0.0	0.0	S.
August.....	77	90	104	64	41	80	75	3.6	7	2.2	5.5	0.0	0.0	S.
Summer mean.....	77	89		64				14.7	24	9.6	25.2	0.0		S.
September.....	71	84	107	58	32	75	64	4.1	8	0.4	10.1	0.0	0.0	S.
October.....	60	73	99	46	24	65	52	2.7	6	1.5	0.3	T.	0.2	S.
November.....	45	57	87	34	4	51	42	2.2	7	3.0	4.2	0.6	5.0	SW.
Fall mean.....	58	71		46				9.0	21	4.9	14.6	0.6		S.
Annual mean.....	56	68	110	45	-24			44.6	93	29.7	58.2	13.9	9.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-26; Feb. 15; Dec. 28.	July 1, 24; Aug. 12-15.	1899	Jan. 29-31; Feb. 8-13; Dec. 15.	None.
1895	Jan. 12, 27, 29, 30; Feb. 1, 2, 4-9.	None.	1900	Feb. 17.	Aug. 21.
1896	None.	Do.	1901	Dec. 14, 15, 17, 18, 20.	July 3-25, 28, 29; Aug. 2, 3, 9.
1897	Jan. 27.	July 30; Aug. 2-4, 26; Sept. 3, 4.	1902	Jan. 27; Feb. 2, 4.	None.
1898	Dec. 13, 14.	None.	1903	Feb. 16, 17.	Do.

IOWA.

By JOHN R. SAGE,
Section Director.

IOWA.

Physical features.—Except the small portion of Lee County which extends southward to the confluence of the Des Moines and Mississippi rivers, the State of Iowa lies between latitude 40° 30' and 43° 30' north; and its extreme eastern and western boundaries are within the meridians 90° and 97° west. According to the Twelfth United States Census the State has a total land surface of 55,475 square miles, of which area 97.4 per cent is included in farms. Its permanent water surface, in the form of lakes and rivers, constitutes about 1 per cent of its area; and probably 10 per cent is subject to occasional overflow and some measure of damage by surface water during seasons of excessive rainfall.

Prior to its settlement the general aspect of the State was that of a succession of rolling prairies intersected by timber-skirted streams, the treeless portion constituting probably four-fifths of the area. In the process of transforming the wilderness into an agricultural State, a considerable portion of the primitive timber bordering the streams has been cleared away, but the total number of trees has been materially increased by planting groves and shelter belts over the prairies and divides. This has caused some abatement of the force of the winds that sweep over these central plains, giving rise to the theory that the climate has been materially changed by man's agency.

Iowa forms a part of the great plain of the central valley of the continent. Though its surface is rather more broken than that of the States to the east, north, and west, yet the relief is small. The zero point on the river gage at Keokuk shows an elevation of 477 feet; the elevation of Sibley, in Osceola County, is 1,512 feet; and it is believed that some of the morainic prominences in the northwest are fully 100 feet higher than the railway tracks at Sibley. These figures show a difference of only about 1,200 feet between the lowest and highest points within the State. The average elevation of 27 meteorological stations in the three northern districts is about 1,200 feet; average of 49 stations in the three central districts is 885 feet. The bed of the Missouri River along the western boundary of the State is about 500 feet higher than the bed of the Mississippi River on the east. The highest points form the crest of the divide between these great rivers. About two-thirds of the surface of the State is drained by streams flowing southeast to the Mississippi River, and the balance is drained by streams flowing southwest to the Missouri.

Iowa presents all the characteristics of a prairie State, and its principal topographic features are due to erosion. There is not a single prominence attributable to uplifts of the subjacent strata. Its exceedingly fertile soil is supported by heavy deposits of glacial drift. Having no mountain ranges, the general uniformity of surface gives to the State a practically homogeneous climate, with only such variations of temperature and rainfall as result from latitude and from slight differences in elevation and location with reference to the normal pathway of the cyclones which traverse the continent.

Temperature.—The mean annual temperature of Iowa, as shown by available data for all the years of record, is 47.5°. Dividing the State by east and west lines into three sections, three counties in width, it is found that the annual means are as follows: Northern section, 45.7°; central section, 47.3°; southern section, 50°. By division of each section into three districts, it appears that the southeast district (10 counties) is the warmest, with an annual mean of 50.6°; and the north central district (14 counties) is the coldest, with an annual mean of 45.4°. The highest yearly mean recorded at any station was 51.7° at Keokuk, which is the extreme southern point in the State. The records at voluntary meteorological stations at Cresco and Osage show the lowest yearly mean, viz, 43.3°. The gradient of the mean annual temperature appears to be quite uniform from the south to the north line.

By seasons the mean temperatures for the State are as follows: Winter, 20.2°; spring, 47.4°; summer, 71.8°; autumn, 50.1°. By sections the seasonal mean temperatures are as follows: Northern section: Winter, 18°; spring, 45.4°; summer, 70.6°; autumn, 48.4°. Central section: Winter, 20.3°; spring, 47.1°; summer, 71.7°; autumn, 49.7°. Southern section: Winter, 23.3°; spring, 50°; summer, 73.5°; autumn, 52.6°.

The warmest year of which records for the State at large are at hand was 1894, when the mean temperature was 49.7°; the coldest year was 1895, the mean being 45.5°. This indicates a range of 4.2° in the annual means for the State.

The highest temperature registered in Iowa by a standard thermometer was 113°, at the voluntary meteorological station in Sigourney, on July 22, 1901. That was probably the hottest period ever experienced in Iowa, the records of all stations showing maximum temperatures ranging from 100° to 113°. The mean for the month of July was 82.4° for the State. The lowest temperature recorded in the State was 43° below zero at Cresco, in January, 1888. This extremely low temperature occurred during the prevalence of a cold wave, or succession of cold waves, which continued with slight abatement from the 7th to the 23d of that month. From these records it appears that there has been the remarkable range of 156° between the lowest and highest temperatures in this State. For the past decade there has been an average yearly range of about 136°.

Late and early frosts.—Having a strictly continental climate, the winters of this section are colder and the summers warmer than in the States on the same parallels near the seacoast or the Great Lakes; and remoteness from the equalizing thermal effects of large bodies of water also subjects this interior valley to occasional depression of temperature to the frost line in the early or latter part of the crop-growing season. On the average, however, there is immunity from killing frosts for a period of

about 170 days. The records of the United States Weather Bureau stations in Iowa show that the average date of the latest killing frost in spring is April 20 and the earliest in autumn October 9. At the Des Moines station during the past twenty-five years killing frosts have been noted six times in May and once as late as May 22. During the same period the earliest killing frosts in autumn have occurred nine times in September and twice before the middle of September. At the Sioux City station the average dates are May 1 and September 23, giving immunity from damage by frost for the period of 145 days. The Dubuque records show a practically frostless period averaging 176 days; Davenport, 174 days; Keokuk, 190 days. Damage to the staple farm crops by frost is quite infrequent and generally limited to small areas in the northern districts.

Precipitation.—According to data compiled at all meteorological stations in the State for all the years of record, the average annual precipitation is about 31.4 inches. The averages by sections are as follows: Northern section, 38 stations, 29.9 inches; central section, 46 stations, 31.5 inches; southern section, 35 stations, 32.9 inches. The northwest district, 9 counties, has an average of 28.2 inches, and the southeast district, 10 counties, has 33.6 inches. The average yearly precipitation of the three eastern or Mississippi River districts is 32.5 inches, while that of the three western or Missouri River districts is 30 inches, indicating a difference of only 2.5 inches between the means of the eastern and western slopes of the State. The records compiled at the United States Weather Bureau station at Keokuk show an average of 35.2 inches for a period of thirty-two years, and the official records at the station in Sioux City for fourteen years show an average of 25.8 inches per year. These figures indicate a range of 9.5 inches between the highest and lowest averages recorded at Weather Bureau stations. The summer average rainfall at Sioux City is 10.6 inches and at Keokuk 11.7 inches, showing but a slight difference in the supply of moisture in the critical period of crop growth.

From an agricultural point of view the most important feature of the climate of Iowa is the fact that the bulk of its yearly precipitation falls in the crop season, April to September, inclusive. The average winter precipitation is 3.3 inches, or about 10 per cent of the yearly amount; spring, 8.8 inches, 28 per cent; summer, 12.2 inches, 39 per cent; autumn, 7.1 inches, 23 per cent. In the six crop months the average rainfall is 22.5 inches, or 71 per cent of the yearly total. In the four most important crop months, May 1 to September 1, the average is 16.3 inches, or 51 per cent. This feature of the climate is more in evidence in the western districts than in the balance of the State. The Missouri Valley receives the least amount for the year, but receives a greater percentage in the crop season. The fall and winter precipitation is relatively much lighter in the west than in the east.

In common with all parts of the United States there has been marked variation in the seasonal rainfall of this section. During the last fourteen years the lowest average amount for the State was 21.9 inches in 1894 and the highest was 43.8 inches in 1902. In 1894 the State average for the four critical crop months (May–August) was 6.7 inches, or a monthly average of 1.7 inches, and in the corresponding months of 1902 the amount was 27.8 inches, or 6.9 inches per month. And yet during those years of extremes for the State at large there were small areas of the State that received about the normal amount, this fact serving as a striking illustration of inequality in the distribution of rainfall.

Since the early settlement of this State the records show that severe midsummer droughts have occurred at irregular intervals, averaging two to three in each decade. During the last fourteen years the normal rainfall for the four critical crop months (16.2 inches) was exceeded eight times, and the average fell below the normal six times. There has been, in fact, a greater liability to excess than deficiency in the crop season, and more damage to crops has been caused by excess in the season of planting and growth than by reverse conditions. Since 1890 this section has suffered quite heavy loss by drought and hot winds in two seasons, viz, 1894 and 1901. In 1897 there was also deficiency of moisture in the latter part of the summer, which caused a shortage of the corn yield as compared with the average. In all the years since the territory was opened to settlement by civilized people there has not been anything approaching a total failure of the staple crops caused by drought or excessive rainfall.

Destructive storms.—This central valley is watered and made fruitful by cyclones, areas of low pressure which generally move across the continent with moderate force and beneficial effect. The greater part of the rainfall in spring, summer, and early autumn comes in form of showers, distributing variable amounts of moisture, frequently accompanied by electrical disturbance. The more violent storms which occasionally visit this section are exceptional products of the benign elements, and their destructive effects are usually limited to narrow tracks and relatively small areas. Thunderstorms occur quite frequently in all parts of the State, the larger number in the months of May, June, July, and August. The records of the United States Weather Bureau stations in Iowa show the following yearly average number of days on which thunderstorms have occurred, viz: Des Moines, 39 days; Keokuk, 41; Davenport, 36; Dubuque, 31; Sioux City, 36; average of the five stations, 37. This is probably the approximate yearly average for the State. Of this number about 30 to 35 have been in the six crop months. Many thunderstorms in the warmer months are evidently of the convectional type and local in extent as well as in destructive effect.

For any single locality it may be stated that fully 80 per cent of the thunderstorms are entirely harmless. And yet in the State at large lightning has been more destructive to human life than any other storms, and it has also caused greater aggregate destruction of farm animals and other farm property. The experience of insurance companies whose policies cover live stock and farm buildings attest the extent of hazard from that cause.

Hail.—The aggregate destruction of crops by hailstorms has been quite heavy, though variable in extent of damage from year to year. Mutual insurance associations have been organized to afford partial indemnity for the losses borne by farmers in hail-stricken districts, and this fact indicates that considerable areas have been swept over by this class of storms.

At the Weather Bureau stations in Des Moines, Davenport, Dubuque, Keokuk, and Sioux City the average number of days on which hailstorms were recorded has been two to three per annum. Generally these have not been severe and destructive to property.

Tornadoes.—Gales and squalls of almost hurricane force have occasionally wrought destruction to farm buildings, wind-mills, and the lighter class of structures in the more exposed localities, and sensational news dispatches have heralded these disturbances as "cyclones" or tornadoes, causing abroad a misconception as to the climate of this section. As a matter of fact, tornadoes are infrequent visitors in this State, and when they have occurred the area of desolation has been insignificant in comparison with the State. The greatest area swept over by tornadoes in any year since this section was settled by civilized people was less than one-twentieth of 1 per cent of the surface of the State. There has been a vast deal of sensational exaggeration as to the hazards of life and property due to this class of storms. During the past fifty years there have occurred three tornadoes which were notable on account of the unusual distance traversed and the great loss of life and destruction of property caused thereby. The first of these storms occurred in June, 1860, and was known as the Comanche tornado, because of the almost total destruction of that village. The second was the Grinnell tornado, which occurred on the evening of June 17, 1882, causing the death of nearly 100 persons in that place and destroying a large number of buildings in its pathway. The third was the Pomeroy tornado, which wrought much destruction of property and considerable loss of life in that town on the evening of July 6, 1893. The track of the first named was about 200 miles in length and less than 1,000 feet in width; the second was over 40 miles in length and nearly 1,000 feet wide; the third was about 50 miles in length and 800 to 1,000 feet wide.

The class of windstorms that have wrought the greatest aggregate destruction of property in Iowa are the severe gales or squalls which occur with considerable frequency and sweep over broad areas of the State.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adair.....	Greenfield.....	South Central.....	651	Jasper.....	Newton.....	Central.....	643
Adams.....	Corning.....	Southwest.....	654	Jefferson (see Bonaparte or Washington).		Southeast.....	
Allamakee (see Elkader or Fayette).		Northeast.....		Johnson.....	Iowa City.....	East central.....	647
Appanoose (see Corydon).		South Central.....		Jones (see Cedar Rapids).		do.....	
Audubon (see Atlantic).		West Central.....		Keokuk (see Washington).		Southeast.....	
Benton.....	Belle Plaine.....	East Central.....	644	Kossuth (see Charles City).		North central.....	
Blackhawk (see Grundy Center).		do.....		Lee.....	Keokuk.....	Southeast.....	658
Boone (see Des Moines).		Central.....		Linn.....	Cedar Rapids.....	East central.....	646
Bremer (see Fayette).		Northeast.....		Louisa (see Washington).		Southeast.....	
Buchanan.....	Independence.....	East Central.....	640	Lucas (see Corydon).		South central.....	
Buena Vista.....	Alta.....	Northwest.....	632	Lyon (see Sioux City or Larrabee).		Northwest.....	
Butler (see Hampton or Charles City).		North Central.....		Madison (see Des Moines or Greenfield).		South central.....	
Calhoun (see Sac City).		Central.....		Mahaska (see Newton).		do.....	
Carroll.....	Carroll.....	West Central.....	642	Marion (see Des Moines or Newton).		do.....	
Cass.....	Atlantic.....	Southwest.....	650	Marshall (see Newton).		Central.....	
Cedar (see Davenport or Iowa City).		East Central.....		Mills (see Clarinda or Omaha, Nebr.).		Southwest.....	
Cerro Gordo (see Charles City).		North Central.....		Mitchell (see Charles City).		North central.....	
Cherokee.....	Larrabee.....	Northwest.....	631	Monona (see Sioux City).		West central.....	
Chickasaw (see Charles City).		Northeast.....		Monroe (see Corydon).		South central.....	
Clarke (see Corning or Corydon).		South Central.....		Montgomery (see Clarinda).		Southwest.....	
Clay (see Alta).		Northwest.....		Muscatine (see Davenport).		East central.....	
Clayton.....	Elkader.....	Northeast.....	635	O'Brien (see Larrabee).		Northwest.....	
Clinton.....	Clinton.....	East central.....	648	Osceola (see Larrabee).		do.....	
Crawford (see Carroll).		West central.....		Page.....	Clarinda.....	Southwest.....	635
Dallas (see Des Moines).		Central.....		Palo Alto (see Alta).		North central.....	
Davis (see Bonaparte).		Southeast.....		Plymouth (see Sioux City).		Northwest.....	
Decatur (see Corydon).		South central.....		Pocahontas (see Alta).		North central.....	
Delaware (see Dubuque).		East central.....		Polk.....	Des Moines.....	Central.....	652
Des Moines (see Keokuk).		Southeast.....		Pottawattamie (see Atlantic or Omaha, Nebr.).		Southwest.....	
Dickinson (see Alta or Larrabee).		Northwest.....		Poweshiek (see Newton or Amana).		Central.....	
Dubuque.....	Dubuque.....	East central.....	641	Ringgold (see Clarinda or Corydon).		South central.....	
Emmet (see Alta).		North central.....		Sac.....	Sac City.....	West central.....	637
Fayette.....	Fayette.....	Northeast.....	634	Scott.....	Davenport.....	East central.....	649
Floyd.....	Charles City.....	North central.....	630	Shelby (see Carroll or Atlantic).		West central.....	
Franklin.....	Hampton.....	do.....	633	Sioux (see Larrabee or Sioux City).		Northwest.....	
Fremont (see Clarinda).		Southwest.....		Story (see Des Moines).		Central.....	
Grundy (see Carroll).		Central.....		Tama (see Belle Plaine).		do.....	
Grundy Center.....	Grundy Center.....	do.....	639	Taylor (see Clarinda).		Southwest.....	
Guthrie (see Carroll or Greenfield).		do.....		Union (see Corning).		South central.....	
Hamilton (see Iowa Falls).		do.....		Van Buren.....	Bonaparte.....	Southeast.....	657
Hancock (see Hampton).		North central.....		Wapello (see Bonaparte).		do.....	
Hardin.....	Iowa Falls.....	Central.....	638	Warren (see Des Moines).		South central.....	
Harrison (see Omaha, Nebr.).		West central.....		Washington.....	Washington.....	Southeast.....	653
Henry (see Keokuk or Washington).		Southeast.....		Wayne.....	Corydon.....	South central.....	656
Howard (see Charles City).		Northeast.....		Webster (see Sac City or Iowa Falls).		Central.....	
Humboldt (see Alta or Hampton).		North central.....		Winnebago (see Charles City).		North central.....	
Ia (see Sac City).		West central.....		Winneshiek (see Fayette).		Northeast.....	
Iowa.....	Amana.....	East central.....	645	Woodbury.....	Sioux City.....	West central.....	636
Jackson (see Dubuque or Clinton).		do.....		Worth (see Charles City).		North central.....	
				Wright (see Hampton).		do.....	

NORTH CENTRAL DISTRICTS.

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STATE SUMMARY.

Station.	Num-ber.	Temperature.						Average num-ber days with—		
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absol-ute maxi-mum.	Date.	Absol-ute mini-mum.	Date.	Maxi-mum above 90°.	Mini-mum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Charles City.....	1	45	56	36	108	July, 1901.....	-31	February, 1899.....	13	145
Larrabee.....	2	46	58	34	108	do.....	-37	do.....	21	164
Alta.....	3	46	56	35	106	July, 1894.....	-33	do.....	15	154
Hampton.....	4	46	57	35	109	July, 1901.....	-30	do.....	19	148
Fayette.....	5	46	57	34	110	do.....	-30	do.....	21	157
Elkader.....	6	47	60	35	111	do.....	-31	January, 1895.....	33	155
Sioux City.....	7	48	58	38	107	July, 1894.....	-31	February, 1899.....	20	143
Sac City.....	8	47	57	36	108	July, 1903.....	-30	January, 1894.....	20	144
Iowa Falls.....	9	45	57	34	105	July, 1894.....	-33	do.....	19	159
Grundy Center.....	10	46	57	35	105	July, 1901.....	-29	February, 1899.....	16	150
Independence.....	11	46	57	35	106	do.....	-29	do.....	15	148
Dubuque.....	12	48	57	39	106	do.....	-32	January, 1887.....	13	125
Carroll.....	13	47	59	35	109	do.....	-31	February, 1899.....	25	152
Newton.....	14	48	59	38	107	do.....	-28	do.....	22	142
Belle Plaine.....	15	47	58	36	106	July, 1894.....	-32	do.....	19	140
Amana.....	16	48	58	38	104	do.....	-29	January, 1894.....	20	138
Cedar Rapids.....	17	49	59	39	107	July, 1901.....	-25	February, 1899.....	26	131
Iowa City.....	18	49	61	38	108	do.....	-30	January, 1894.....	29	136
Clinton.....	19	49	60	38	106	do.....	-28	do.....	28	141
Davenport.....	20	50	58	41	106	do.....	-27	January, 1884.....	13	120
Atlantic.....	21	48	60	36	110	do.....	-31	January, 1902.....	36	158
Greenfield.....	22	49	61	37	106	do.....	-29	February, 1899.....	27	141
Des Moines.....	23	49	59	40	109	do.....	-30	January, 1884.....	19	124
Washington.....	24	49	60	38	106	do.....	-26	February, 1899.....	29	131
Corning.....	25	49	61	28	106	do.....	-25	do.....	20	129
Clarinda.....	26	50	61	40	110	do.....	-24	do.....	30	137
Corydon.....	27	50	62	39	112	do.....	-25	do.....	28	137
Bonaparte.....	28	51	62	40	112	do.....	-23	do.....	37	131
Keokuk.....	29	52	61	43	108	do.....	-26	January, 1873.....	26	112

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Charles City.....	1	Sept. 25	May 3	Sept. 12	May 21	Inches. 29.8	Inches. 9.0	Inches. 11.2	Inches. 6.6	Inches. 3.0
Larrabee.....	2	Sept. 20	May 11	do.....	May 31	30.4	8.7	12.8	6.8	2.1
Alta.....	3	Sept. 26	May 7	do.....	May 30	30.7	8.8	13.7	6.2	2.0
Hampton.....	4	Oct. 2	May 4	Sept. 20	May 31	33.2	10.2	12.5	7.5	3.0
Fayette.....	5	Sept. 18	May 8	Sept. 11	do.....	32.7	10.2	11.6	7.3	3.6
Elkader.....	6	Sept. 23	May 5	do.....	June 1	31.2	9.4	11.4	7.2	3.2
Sioux City.....	7	do.....	May 1	Sept. 13	May 21	25.5	8.1	10.6	4.9	1.9
Sac City.....	8	Sept. 22	Apr. 30	Sept. 12	May 19	31.1	8.4	13.5	6.7	2.5
Iowa Falls.....	9	do.....	May 7	do.....	May 31	29.8	8.3	12.0	6.6	2.9
Grundy Center.....	10	Sept. 26	May 3	do.....	do.....	34.0	10.0	14.0	7.6	2.4
Independence.....	11	do.....	May 4	do.....	do.....	27.4	8.4	10.0	6.1	2.9
Dubuque.....	12	Oct. 12	Apr. 20	Sept. 27	May 21	35.0	9.5	12.3	8.7	4.5
Carroll.....	13	Sept. 22	May 5	Sept. 12	May 31	32.4	10.3	12.8	6.6	2.7
Newton.....	14	Oct. 8	Apr. 26	Sept. 20	May 19	33.6	10.2	13.1	6.9	3.4
Belle Plaine.....	15	Oct. 4	May 1	do.....	May 31	34.5	10.9	12.2	7.3	4.1
Amana.....	16	Oct. 5	Apr. 23	do.....	May 14	31.2	9.7	11.1	6.9	3.5
Cedar Rapids.....	17	Oct. 8	Apr. 19	do.....	do.....	37.1	8.6	10.1	6.3	12.1
Iowa City.....	18	do.....	Apr. 23	do.....	do.....	32.3	9.6	10.8	7.4	4.5
Clinton.....	19	Oct. 2	Apr. 28	Sept. 13	May 26	32.9	10.0	11.3	7.1	4.5
Davenport.....	20	Oct. 13	Apr. 22	Sept. 18	May 22	32.9	9.3	11.4	7.4	4.8
Atlantic.....	21	Sept. 19	May 11	Sept. 2	May 31	32.4	9.3	13.5	6.8	2.8
Greenfield.....	22	Oct. 9	Apr. 29	Sept. 18	May 21	31.7	10.0	12.1	6.9	2.7
Des Moines.....	23	Oct. 8	Apr. 28	Sept. 12	May 22	32.4	9.3	12.2	7.3	3.6
Washington.....	24	Oct. 7	Apr. 23	Sept. 13	May 14	28.7	8.3	10.0	6.6	3.8
Corning.....	25	Oct. 2	Apr. 26	Sept. 12	May 19	31.3	9.2	12.9	6.0	3.2
Clarinda.....	26	Oct. 6	Apr. 19	Sept. 13	May 3	33.1	9.8	13.7	6.8	2.8
Corydon.....	27	Oct. 5	Apr. 28	Sept. 18	May 19	35.3	9.7	13.2	8.1	4.3
Bonaparte.....	28	Oct. 7	Apr. 20	Sept. 20	May 14	33.3	9.6	11.5	8.3	3.9
Keokuk.....	29	Oct. 22	Apr. 11	Sept. 18	May 2	35.1	9.8	11.6	8.5	5.2

IOWA.

North Central District: FLOYD COUNTY. Station: CHARLES CITY.

C. H. PRIEBE, Observer.

[Established in 1891 by Weather Bureau, J. W. Smith, Observer. Latitude, 43° 4' N. Longitude, 92° 40' W. Elevation, 1,024 feet.]

This station is on a slight elevation in the eastern part of Charles City, about 700 feet north of the Cedar River. It is in an open space, near no hills, large trees, or buildings.

The maximum and minimum thermometers are exposed in a standard shelter attached to the north side of the observer's residence, about 4½ feet above the ground. The door opens toward the north. The rain gage is 10 feet from the house and about 12 feet west of the shelter.

The monthly mean temperature was obtained by dividing the sum of the mean minimum and the mean maximum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	19	28	56	11	-23	28	13	1.1	5	1.0	2.3	5.9	7.0	NW.
January.....	16	25	58	8	-27	22	7	0.9	5	1.2	0.6	6.7	5.5	NW.
February.....	14	23	62	7	-31	24	9	1.0	3	1.0	0.3	6.6	11.0	NW.
Winter mean.....	16	25		9				3.0	13	3.2	3.2	19.2		NW.
March.....	31	40	78	22	-16	38	20	1.7	6	0.5	2.2	4.4	4.0	NW.
April.....	48	59	90	38	10	53	42	3.0	9	0.9	1.0	2.0	6.0	N.
May.....	60	73	92	49	28	65	54	4.3	10	3.5	0.2	0.0	0.0	SE.
Spring mean.....	46	57		36				9.0	25	4.9	12.4	6.4		SE.
June.....	68	79	99	58	34	72	63	4.6	10	5.6	8.4	0.0	0.0	NW.
July.....	73	85	108	61	39	81	71	3.6	7	1.8	7.9	0.0	0.0	NW.
August.....	71	82	102	59	36	77	66	3.0	7	4.6	6.7	0.0	0.0	SE.
Summer mean.....	71	82		59				11.2	24	12.0	23.0	0.0	.0	NW.
September.....	63	73	95	51	19	73	57	3.1	7	2.0	2.8	0.0	0.0	S.
October.....	50	62	87	39	9	57	42	2.1	6	0.5	1.1	0.5	0.5	SE.
November.....	32	41	70	23	-13	42	26	1.4	5	2.0	3.2	5.6	5.0	NW.
Fall mean.....	48	59		38				6.6	18	4.5	7.1	6.1		NW.
Annual mean.....	45	56	108	36	-31			29.8	80	24.6	45.7	31.7	11.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 7, 23-25, 27; Feb. 19, 21, 24.	July 18, 26, 27; Aug. 7-9.	1900	Jan. 23, 30, 31; Feb. 6, 9, 13, 15, 16, 25; Mar. 16.	Aug. 4.
1895	Jan. 3, 8, 11, 23, 24, 27-30; Feb. 1-5, 7-10, 16.	July 16.	1901	Feb. 10; Dec. 12-14, 17-19.	June 24-27, 30; July 9, 10, 13, 14, 16, 17, 19-27.
1896	Jan. 2-4; Feb. 20.....	July 14; Aug. 4, 7, 8.	1902	Jan. 27, 28; Feb. 2-5, 15; Dec. 3, 25-27.	June 14; July 30.
1897	Jan. 23-27; Feb. 25-27; Mar. 14; Nov. 27, 29, 30; Dec. 16, 21-24.	July 7, 8.	1903	Feb. 16-18; Dec. 13-15, 26, 27, 30.	None.
1898	Feb. 1, 2; Nov. 28; Dec. 8, 9, 13, 14, 31.	Aug. 30, 31; Sept. 1, 2.			
1899	Jan. 1, 27-31; Feb. 2, 13, 24, 27; Mar. 6, 7; Dec. 15, 30.	Aug. 10.			

IOWA.

Northwest District: CHEROKEE COUNTY. Station: LARRABEE.

H. B. STREVER, Observer.

[Established by Signal Service 1890. Latitude, 42° 53' N. Longitude, 95° 30' W. Elevation, 1,400 feet.]

This station is about 1 mile west and 80 rods south of the town of Larrabee, on the crest of a ridge extending nearly east and west and 40 to 50 feet above the village.

The maximum and minimum thermometers are exposed on the north side of the observer's storehouse, about 3 feet from the northwest corner of the building. They are elevated about 6 feet above the ground. A roof, 3 feet above, affords them protection from the rain. They are shielded from the sun's rays on summer afternoons by boards extending from the northwest corner of the building and also by a projecting angle of the building, 20 feet distant.

The rain gage is exposed 50 feet northwest of the observer's residence and is 40 feet distant east of a row of spruce trees, 18 to 20 feet high. The height of the top of the gage above ground is 25 inches.

The monthly mean temperature was obtained by dividing the sum of the mean minimum and the mean maximum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
December.....	° F. 21	° F. 31	° F. 54	° F. 11	° F. -26	° F. 28	° F. 16	In. 0.9	5	In. 1.3	In. 0.3	In. 5.1	In. 7.0
January.....	18	28	57	7	-28	23	9	0.5	4	0.8	0.4	4.0	7.5
February.....	16	28	72	5	-37	28	8	0.7	4	0.3	1.2	6.0	10.0
Winter mean.....	18	29		8				2.1	13	2.4	1.9	15.1	
March.....	31	43	88	19	-14	37	19	1.6	7	1.1	1.6	5.0	5.5
April.....	48	61	88	35	6	54	43	2.9	7	4.3	2.7	2.1	5.5
May.....	59	72	98	46	27	63	56	4.2	9	1.2	6.3	0.0	0.0
Spring mean.....	46	59		33				8.7	23	6.6	10.6	7.1	
June.....	68	82	98	55	30	73	64	4.5	9	2.6	6.9	0.0	0.0
July.....	73	87	108	59	36	82	70	5.0	8	0.7	14.1	0.0	0.0
August.....	70	83	103	58	35	76	67	3.3	7	2.5	2.2	0.0	0.0
Summer mean.....	70	84		57				12.8	24	5.8	23.2	0.0	
September.....	62	76	100	49	26	71	56	4.0	6	1.0	6.2	0.0	0.0
October.....	50	63	89	37	7	57	45	1.8	5	2.8	1.5	0.9	6.0
November.....	32	43	74	22	-12	42	22	1.0	5	0.4	0.5	4.3	8.0
Fall mean.....	48	61		36				6.8	16	4.2	8.2	5.2	
Annual mean.....	46	58	108	34	-37			30.4	76	19.0	43.9	27.4	10.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6-8, 22-25, 27, 29; Feb. 1, 21, 23; Dec. 27.	June 12-14, 28-30; July 10, 11, 16, 18, 22-27, 29-31; Aug. 6-10, 31.	1899	Jan. 1, 5, 7, 27-31; Feb. 2-13, 27; Nov. 6, 22, 23; Dec. 26, 30, 31.	None.
1895	Jan. 8, 11-13, 23-31; Feb. 1, 3-5, 7-11.	May 28; July 18, 28; Aug. 8; Sept. 10, 11, 17, 19.	1900	Jan. 28, 30, 31; Feb. 9, 13, 15-17, 24, 25; Mar. 16.	June 26.
1896	Jan. 3, 4; Nov. 30.....	July 2, 14; Aug. 4, 7.	1901	Feb. 9; Dec. 14-20.....	June 27, 30; July 3, 4, 9-27; Aug. 1, 20.
1897	Jan. 23-28; Feb. 23, 26, 27; Mar. 14; Nov. 29; Dec. 1, 16-18, 21-23.	June 13; July 8, 31; Sept. 2, 4, 5, 12, 13.	1902	Jan. 26-28, 31; Feb. 2-5, 8; Dec. 2, 8, 25, 26.	None.
1898	Feb. 2; Nov. 26; Dec. 8, 9, 13, 30, 31.	June 23; July 18, 22-24; Aug. 22, 30.	1903	Jan. 11; Feb. 16-18; Dec. 12-14, 25, 26.	Do.

IOWA.

Northwest District: BUENA VISTA COUNTY. Station: ALTA.

DAVID E. HADDEN, Observer.

[Established by Signal Service April 30, 1890. Latitude, 42° 40' N. Longitude, 95° 21' W. Elevation, 1,515 feet.]

This station is located within the limits of the town of Alta, which is the highest point in Iowa on the Illinois Central Railway and the second highest point in the State. The surrounding country is rolling farm land, sloping away from the town in all directions.

The thermometer shelter is the standard Weather Bureau structure, 2½ by 1½ feet at the base and 3½ feet high, and the roof is double; the sides and door are louvered, and the door opens toward the north. It is located in a garden about 50 feet west of the observer's residence. The instruments are elevated 5 feet above ground. The rain gage is of the standard Weather Bureau pattern, 8 inches in diameter, and is exposed about 25 feet north of the thermometer shelter, the top being two feet above the ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	20	28	54	12	-26	28	15	0.8	7	1.0	2.0	5.2	7.0	NW.
January.....	17	26	56	8	-28	23	7	0.5	6	0.7	0.9	4.8	5.0	NW.
February.....	16	26	74	7	-33	27	9	0.7	6	0.3	0.4	6.0	6.0	NW.
Winter mean.....	18	27	.....	9	.....	.....	.....	2.0	19	2.0	3.3	16.0	.....	NW.
March.....	30	40	82	21	-10	38	19	1.6	9	0.8	0.9	6.2	6.0	NW.
April.....	48	59	86	37	11	54	41	3.2	8	3.6	1.5	1.8	7.0	NW.
May.....	60	71	96	48	27	63	55	4.0	12	1.5	4.3	0.0	0.0	S.
Spring mean.....	46	57	.....	35	.....	.....	.....	8.8	29	5.9	6.7	8.0	.....	NW.
June.....	68	79	99	56	34	73	63	5.0	11	2.8	6.6	0.0	0.0	S.
July.....	73	85	106	61	44	81	70	4.9	9	0.4	12.2	0.0	0.0	S.
August.....	70	82	102	59	40	75	66	3.8	9	2.9	6.3	0.0	0.0	S.
Summer mean.....	70	82	.....	59	.....	.....	.....	13.7	29	6.1	25.1	0.0	.....	S.
September.....	62	73	98	52	20	70	57	3.3	7	1.1	3.9	0.0	0.0	S.
October.....	51	62	88	40	11	58	45	1.7	7	3.2	1.1	0.4	3.0	NW.
November.....	32	41	74	23	-9	44	22	1.2	7	0.3	2.8	4.0	7.0	NW.
Fall mean.....	48	59	.....	38	.....	.....	.....	6.2	21	4.6	7.8	4.4	.....	NW.
Annual mean.....	46	56	106	35	-33	.....	.....	30.7	98	18.6	42.9	28.4	7.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 8, 22-25, 27, 29; Feb. 19, 21; Dec. 27.	June 30; July 11, 18, 23, 25-27, 29, 30; Aug. 7-10.	1899	Jan. 1, 7, 27-31; Feb. 2, 4, 5-13, 27; Dec. 30, 31.	Sept. 6.
1895	Jan. 8, 11, 12, 23, 24, 26-31; Feb. 1, 3-5, 7, 8, 10.	May 28; Aug. 8; Sept. 17.	1900	Jan. 28, 30, 31; Feb. 9, 13, 15-17, 25; Mar. 16.	None.
1896	Jan. 3, 4.	July 2, 14.	1901	Dec. 13-15, 17-20.	June 30; July 9-17, 19-27; Aug. 1.
1897	Jan. 23-27; Feb. 23, 26, 27; Mar. 14; Dec. 16.	July 3, 7, 8, 31.	1902	Jan. 26-28; Feb. 2, 4, 5, 8; Dec. 25, 26.	None.
1898	Feb. 2; Dec. 13, 30, 31.	Aug. 30.	1903	Feb. 16-18; Dec. 12-14, 26.	Do.

IOWA.

North Central District: FRANKLIN COUNTY. Station: HAMPTON.

E. C. GRENELLE, Observer.

[Established in June, 1888. Latitude, 42° 30' N. Longitude, 93° 20' W. Elevation, 1,160 feet.]

This station is near the center of Hampton, on the south central side of the public park, about as high as any part of the city, which is on a level plateau. The thermometers are exposed in a latticed shelter, about 8 feet west of a residence. It is open at the bottom, and has a double roof with air space between the two; and the thermometers are about 5 feet above the ground. The rain gage is 40 feet south of the shelter, 30 feet from the two-story house, and free from any trees; the top of gage is 27 inches above ground.

Tabulated data are for the period of observation, January 1, 1893, to December 31, 1903.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	20	28	58	12	-22	28	14	1.0	5	1.1	2.4	5.7	13.0	NW.
January.....	16	25	59	8	-27	23	4	0.9	4	1.0	1.5	6.5	7.0	NW.
February.....	16	26	64	7	-30	24	9	1.1	5	0.9	0.9	8.9	13.5	NW.
Winter mean.....	17	26	.....	9	.....	.....	.....	3.0	14	3.0	4.8	21.1	.....	NW.
March.....	31	41	88	21	-9	38	21	2.1	8	2.2	2.9	6.8	11.0	NW.
April.....	48	60	90	37	15	52	41	3.7	10	7.0	1.1	1.9	5.5	SE.
May.....	60	72	95	48	27	64	54	4.4	12	1.1	7.4	0.0	0.0	SW.
Spring mean.....	46	58	.....	35	.....	.....	.....	10.2	30	10.3	11.4	8.7	.....	SW.
June.....	68	80	99	57	37	72	64	4.5	11	2.8	8.3	0.0	0.0	SE.
July.....	74	86	109	61	40	82	70	4.5	8	0.7	11.0	0.0	0.0	SW.
August.....	71	84	101	59	37	78	68	3.5	7	2.7	5.8	0.0	0.0	SW.
Summer mean.....	71	83	.....	59	.....	.....	.....	12.5	26	6.2	25.1	0.0	.....	SW.
September.....	63	75	100	50	24	69	57	3.6	8	2.4	4.7	0.0	0.0	SW.
October.....	51	63	89	39	11	60	43	2.5	6	3.9	1.3	0.1	0.8	NW.
November.....	32	42	74	23	-10	44	25	1.4	6	0.4	2.2	4.5	10.0	NW.
Fall mean.....	49	60	.....	37	.....	.....	.....	7.5	20	6.7	8.2	4.6	.....	NW.
Annual mean.....	46	57	109	35	-30	.....	.....	33.2	90	26.2	49.5	34.4	13.5	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 7, 23-25, 27; Feb. 21; Dec. 27.	June 13; July 11, 12, 16-19, 23, 26, 27, 29, 30; Aug. 7-9.	1900	Jan. 28, 30, 31; Feb. 9, 13, 15.	May 27; June 25, 26; Aug. 26; Sept. 5.
1895	Jan. 11, 12, 23, 24, 26-28, 30; Feb. 1-3, 5, 7-11.	None.	1901	Dec. 13-15, 18, 19.....	June 24-27; July 4, 9-27; Aug. 17-21; Sept. 5, 6.
1896	Jan. 3-5; Feb. 20.....	July 14; Aug. 4, 8.	1902	Jan. 26-28; Feb. 2, 4, 5; Dec. 8, 25, 26.	None.
1897	Jan. 24-27; Feb. 26, 27; Nov. 29; Dec. 18.	July 8, 9; Sept. 13.	1903	Feb. 16-18; Dec. 12, 13, 25, 26, 30.	Do.
1898	Feb. 2; Dec. 8, 13, 31.	July 24; Aug. 30.			
1899	Jan. 1, 7, 27-31; Feb. 2, 4-13, 27.	July 22; Aug. 23, 27; Sept. 4, 6.			

IOWA.

Northeast District: FAYETTE COUNTY. Station: FAYETTE.

R. Z. LATIMER, Observer.

[Established 1890. Latitude, 42° 50' N. Longitude, 91° 49' W. Elevation, 1,003 feet.]

This station is located in Fayette near the Upper Iowa University. The town is situated near the Volga River, surrounded by ridges and deep valleys. The instruments, consisting of maximum and minimum thermometers, are well exposed on a lawn 5 feet above the sod in a standard shelter.

The rain gage is exposed on the ground, 40 feet from the nearest building or tree and is of the standard pattern.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	21	29	54	12	-24	29	15	1.3	5	1.4	2.2	5.6	8.5	NW.
January.....	17	27	60	7	-30	22	5	1.1	6	1.1	0.8	7.6	6.0	NW.
February.....	16	26	59	6	-30	24	9	1.2	6	0.4	1.5	7.7	10.0	NW.
Winter mean.....	18	27	.....	8	.....	.....	.....	3.6	17	2.9	4.5	20.9	.....	NW.
March.....	32	41	86	22	-15	39	22	2.2	8	3.3	2.3	7.1	7.5	NW.
April.....	48	60	88	36	11	52	45	3.0	8	3.8	1.1	1.0	5.1	NW.
May.....	59	71	91	47	25	65	54	5.0	11	2.0	15.6	0.0	0.0	NW.
Spring mean.....	46	57	.....	35	.....	.....	.....	10.2	27	9.1	19.0	8.1	.....	NW.
June.....	68	80	99	55	30	72	62	4.0	10	1.8	8.8	0.0	0.0	NW.
July.....	73	86	110	58	40	82	70	4.6	8	0.2	9.1	0.0	0.0	SW.
August.....	70	83	103	57	35	76	65	3.0	7	1.4	4.9	0.0	0.0	SW.
Summer mean.....	70	83	.....	57	.....	.....	.....	11.6	25	3.4	22.8	0.0	.....	SW.
September.....	63	76	100	50	15	69	57	3.1	8	2.1	3.9	0.0	0.0	NW.
October.....	50	62	90	38	8	57	44	2.7	6	3.4	1.5	0.5	5.0	NW.
November.....	33	43	73	23	-9	40	29	1.5	6	1.3	2.1	3.9	4.3	NW.
Fall mean.....	49	60	.....	37	.....	.....	.....	7.3	20	6.8	7.5	4.4	.....	NW.
Annual mean.....	46	57	110	34	-30	.....	.....	32.7	89	22.2	53.8	33.4	10.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 7, 8, 24, 25; Feb. 4	June 11-15, 30; July 9-12, 15-19, 23-30; Aug. 1, 7-9, 17, 23; Sept. 1.	1900	Jan. 28, 30, 31; Feb. 6, 9, 16, 25; Dec. 31.	June 25.
1895	Jan. 8, 11, 24, 27, 28, 30; Feb. 1-5, 7-11, 16; Dec. 5.	July 5-7, 13; Aug. 9, 13, 16; Sept. 11.	1901	Jan. 1, 2; Feb. 6, 10; Dec. 13-15, 17-20.	June 26-28, 30; July 1, 4, 8-10, 12-27.
1896	Jan. 3-5; Feb. 20.....	July 12-14; Aug. 4, 8.	1902	Jan. 27, 28; Feb. 1-5, 15, 18, 19; Dec. 4, 8, 25.	None.
1897	Jan. 24-27, 30; Feb. 25-27; Dec. 18, 21-23.	June 13, 14, 17; July 7, 8; Sept. 13.	1903	Feb. 16-18, 20; Dec., missing.	Do.
1898	Feb. 1; Dec. 9, 13, 14, 31.	None.			
1899	Jan. 1, 7, 28-31; Feb. 1, 3-13, 24, 27; Mar. 1, 7; Dec. 30.	Aug. 10, 18, 19; Sept. 5.			

IOWA.

Northeast District: CLAYTON COUNTY. Station: ELKADER.

CHARLES REINECKE, Observer.

[Established 1879 by Signal Service. Latitude, 42° 25' N. Longitude, 91° 33' W. Elevation, 727 feet.]

This station is in the western part of the village of Elkader, which is situated in the valley of the Turkey River, surrounded by bluffs about 225 feet high.

The thermometers are exposed 30 feet from a building in a shelter 3 by 3 feet with latticed sides, about 5 feet above ground. The rain gage is about 20 feet west of the shelter, on an elevated part of the lot, 30 feet distant from a large shade tree; top of gage is about 3 feet above ground. The location is about 40 feet above the track of the Chicago, Milwaukee and St. Paul Railway, and about 30 feet below the post set by the United States surveyors near the court-house.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days. with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	22	31	56	12	-21	29	15	1.3	5	0.9	2.5	5.6	7.0	NW
January.....	19	30	64	8	-31	24	9	0.9	4	0.9	0.8	7.9	10.0	N.
February.....	17	29	64	6	-31	24	11	1.0	4	0.6	1.2	8.3	12.0	NW
Winter mean.....	19	30	.....	9	.....	.....	.....	3.2	13	2.4	4.5	21.8	.....	NW.
March.....	33	43	88	23	-13	40	24	1.9	8	2.7	2.2	5.8	8.0	N.
April.....	49	62	92	36	14	52	43	3.1	8	4.2	1.0	0.9	4.0	N.
May.....	61	74	94	48	26	66	55	4.4	11	1.7	11.8	0.0	0.0	N.
Spring mean.....	48	60	.....	36	.....	.....	.....	9.4	27	8.6	15.0	6.7	.....	N.
June.....	69	83	102	56	31	73	64	4.0	8	3.5	12.5	0.0	0.0	N.
July.....	74	89	111	59	39	82	72	4.6	8	0.2	8.1	0.0	0.0	N.
August.....	72	86	103	57	30	79	67	2.8	6	1.8	2.1	0.0	0.0	N.
Summer mean.....	72	86	.....	57	.....	.....	.....	11.4	22	5.5	22.7	0.0	.....	N.
September.....	63	77	100	49	17	69	56	3.2	8	3.0	4.1	0.0	0.0	SE.
October.....	52	65	93	38	8	59	44	2.6	7	2.9	1.9	T.	4.0	NW.
November.....	34	45	75	24	-8	43	29	1.4	5	1.6	1.9	3.4	4.0	NW.
Fall mean.....	50	62	.....	37	.....	.....	.....	7.2	20	7.5	7.9	3.4	.....	NW.
Annual mean.....	47	60	111	35	-31	.....	.....	31.2	82	24.0	50.1	31.9	12.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 7, 24, 25; Feb. 4, 21, 24.	June 11-15, 21, 29; July 10-12, 15-19, 23, 24, 26-30; Aug. 1, 7-9, 23, 28; Sept. 1.	1900	Jan. 28, 31; Feb. 6, 9, 16.	June 25, 26; July 4; Aug. 2, 4-10, 18-20; Sept. 5.
1895	Jan. 4, 8, 11, 12, 14, 24, 27, 28, 30; Feb. 1-5, 7-12, 15, 16.	July 5, 7, 13, 16-18, 20; Aug. 9, 13, 16, 27; Sept. 10, 11, 19.	1901	Jan. 1-3; Feb. 5-7, 10, 25, 27; Dec. 13-15, 18-20.	June 14, 24-28, 30; July 1-4, 9, 10, 12-26; Aug. 13, 14, 16, 17, 19-21, 24, 28; Sept. 6.
1896	Jan. 3, 4; Feb. 17, 20.	July 12-14, 29, 30; Aug. 4, 5, 7, 8.	1902	Jan. 27, 28; Feb. 1-5, 8, 18, 19; Dec. 8.	July 30.
1897	Jan. 24-27, 30; Feb. 25-27; Dec. 18, 21-24.	June 13, 14, 17; July 3, 7-9, 30; Sept. 8, 9, 13.	1903	Feb. 5, 6, 16-18; Dec. 13, 15, 26, 30.	None.
1898	Feb. 1; Dec. 8, 9, 31.	July 15, 18, 23, 24; Aug. 22, 30, 31; Sept. 1, 2.			
1899	Jan. 1, 27-31; Feb. 2-13, 24; Mar. 7; Dec. 30.	June 19; July 21-23, 25; Aug. 10, 17-19, 23, 27, 28; Sept. 1, 2, 5.			

IOWA.

Western District: WOODBURY COUNTY. Station: SIOUX CITY.

U. G. PURSELL, Observer.

[Established by the Signal Service July 1, 1889. Latitude, 42° 29' N. Longitude, 96° 24' W. Elevation, 1,135 feet.]

This station has always been in the business district of the city and near the business center. This district lies in a valley bounded by Perry Creek on the west and the Floyd River on the east; the Missouri River on the south and a range of hills on the north and northeast, while to the northwest a valley about three-fourths of a mile wide extends to the range of hills about 2 miles distant. To the south of the station is the nearly level Missouri Valley, and there are no hills within 10 miles. The valley where the station stands is about three-fourths of a mile wide, with one-third of the distance to the hills on the northeast and two-thirds of the width to Prospect Hill on the southwest. The latter point is 180 feet in elevation and the former 87 feet. A half mile due north of the stations the hills are 114 feet high.

The thermometers have always been exposed on flat-roofed buildings; the elevation, for the first three years, 89 feet, and for subsequent years, 96 feet. Only the standard Weather Bureau shelter has been used, supporting the thermometers 12 feet above metal roofs. The elevation of the rain gage for the first three years of record was 78 feet, and for subsequent years, 86 feet above the ground and on flat roofs. Since March 16, 1897, the gage has been exposed 43 feet east-northeast of a square stone tower, the top of which is 66 feet above the mouth of the gage. The anemometer elevation is 164 feet above the ground.

Tabulated data are for the full period of observation, fourteen and one-half years, July 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Mean humidity.			Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.				
December.....	° F. 25	° F. 34	° F. 68	° F. 16	° F. -22	° F. 35	° F. 18	In. 0.8	6	In. 1.3	In. 0.2	In. 5.5	In. 8.4	P.ct. 84	Gr. 1.09	P.ct. 70	NW.
January.....	20	29	63	11	-28	28	13	0.5	5	0.6	0.1	5.6	11.0	84	0.83	76	NW.
February.....	19	29	75	10	-31	28	11	0.6	6	0.2	0.7	6.7	9.1	84	0.79	75	NW.
Winter mean.....	21	31		12				1.9	17	2.1	1.0	17.8	.....	84	0.90	74	NW.
March.....	32	41	83	22	-14	40	22	1.2	9	0.6	1.8	5.3	18.0	82	1.22	64	NW.
April.....	50	61	93	39	13	57	45	2.8	10	2.8	2.4	0.7	4.5	77	2.36	52	NW.
May.....	60	71	95	49	29	64	52	4.1	12	1.9	11.8	T.	T.	76	3.56	48	S.
Spring mean.....	47	58		37				8.1	31	5.3	16.0	6.0	.....	78	2.38	55	NW.
June.....	70	80	100	59	39	72	66	4.0	12	2.7	5.6	0.0	0.0	80	5.08	57	S.
July.....	74	86	107	64	41	83	69	3.5	10	1.8	5.6	0.0	0.0	78	5.39	53	S.
August.....	72	83	102	62	40	77	68	3.1	10	1.7	5.7	0.0	0.0	82	5.38	58	S.
Summer mean.....	72	83		62				10.6	32	6.2	16.9	0.0	.....	80	5.28	56	S.
September.....	64	76	103	52	25	72	58	2.4	6	0.7	3.1	0.0	0.0	80	3.88	54	S.
October.....	52	64	90	41	12	59	46	1.7	6	3.3	3.2	0.2	3.0	79	2.42	51	NW.
November.....	34	44	74	25	-9	43	22	0.8	5	0.2	1.0	4.0	7.6	81	1.44	62	NW.
Fall mean.....	50	61		39				4.9	17	4.2	7.3	4.2	.....	80	2.58	56	NW.
Annual mean.....	48	58	107	38	-31			25.5	97	17.8	46.2	28.0	18.0	81	2.79	60	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 5, 7, 8, 22-25; Feb. 19; Dec. 27.	June 30; July 11, 23, 25-27, 30; Aug. 6-10, 23, 28.	1899	Jan. 23, 30; Feb. 2, 4-12, 27.	Aug. 10; Sept. 4, 6.
1895	Jan. 11, 12, 26, 27, 30; Feb. 1, 3, 5, 7, 8.	May 23; July 26; Aug. 8, 13; Sept. 10, 11, 14, 17-19.	1900	Jan. 23, 31; Feb. 9, 15.	June 26; July 3, 13, 31; Aug. 2.
1896	Jan. 3, 4.	July 2, 14; Aug. 3, 4, 7.	1901	Dec. 13-15, 17-20.	June 24-27, 30; July 4, 9-17, 19-27; Aug. 1, 2.
1897	Jan. 24-28; Feb. 26, 27; Dec. 17-19.	July 2, 6-8, 29, 31; Aug. 1; Sept. 1, 2, 4, 5.	1902	Jan. 26-28, 31; Feb. 2, 4; Dec. 26.	None.
1898	Dec. 31.	June 22, 23; Aug. 20, 22, 30; Sept. 1, 2.	1903	Feb. 16-18; Dec. 12, 13.	None.

IOWA.

West Central District: SAC COUNTY. Station: SAC CITY.

J. A. SODESTROM, Observer.

[Established in 1876. Latitude, 42° 25' N. Longitude, 95° W. Elevation, 1,278 feet.]

This station is located in Sac City. The general contour of the country is rolling prairie, alternating with native timber. The thermometers are standard instruments, properly exposed in a standard shelter. The height of the thermometers above ground is 4 feet. The rain gage is exposed in an open space at a proper distance from obstructions. The height of the top of the gage above ground is 4 feet 8 inches.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	22	30	57	14	-22	30	16	1.1	5	1.8	2.2	5.7	8.0	NW.
January.....	18	27	58	9	-30	26	8	0.6	3	1.3	1.4	4.4	5.0	NW.
February.....	18	27	71	9	-29	27	11	0.8	3	1.0	0.2	6.5	14.0	NW.
Winter mean.....	19	28		11				2.5	11	4.1	3.8	16.6		NW.
March.....	32	41	83	22	-7	38	21	1.6	5	2.8	1.2	6.1	8.0	NW.
April.....	49	59	88	38	15	53	42	3.2	7	5.0	1.3	0.7	6.0	SE.
May.....	60	72	97	48	28	65	51	3.6	8	1.9	3.6	0.0	0.0	SE.
Spring mean.....	47	57		36				8.4	20	9.7	6.1	6.8		SE.
June.....	69	81	98	57	36	73	65	5.1	9	2.2	5.6	0.0	0.0	SW.
July.....	74	86	108	61	42	83	71	4.2	7	3.4	12.6	0.0	0.0	SW.
August.....	71	84	103	59	39	76	67	4.2	6	1.4	8.0	0.0	0.0	SW.
Summer mean.....	71	84		59				13.5	22	7.0	26.2	0.0		SW.
September.....	63	75	98	50	21	70	58	3.2	7	T.	3.1	0.0	0.0	SW.
October.....	52	63	91	40	19	59	45	2.5	5	1.6	1.2	T.	T.	NW.
November.....	33	43	68	24	-7	44	25	1.0	5	0.2	2.0	3.4	5.0	NW.
Fall mean.....	49	60		38				6.7	17	1.8	6.3	3.4		NW.
Annual mean.....	47	57	108	36	-30			31.1	70	22.6	42.4	26.8	14.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6-8, 23-25, 27; Feb. 21; Dec. 27.	June 30; July 18, 26-30; Aug. 6-10, 23, 31.	1900	Jan. 28, 31; Feb. 9, 13, 15.	Sept. 6.
1895	Jan. 8, 11, 12, 26-28, 30; Feb. 1-4, 5, 7, 8, 10, 11.	May 9, 29; July 5, 17.	1901	Dec. 13-15, 18-20.....	June 26, 27, 30; July 3, 4, 9-27, 31; Aug. 1, 16, 20, 21, 28.
1896	Jan. 3, 4.....	June 15-19; July 2, 12-14; Aug. 3, 7.	1902	Jan. 26-28, 31; Feb. 2-5; Dec. 25, 26.	None.
1897	Jan. 23-27; Feb. 26, 27; Dec. 16, 18.	June 13; July 3, 7, 8, 30, 31; Sept. 2, 3, 5, 6, 8, 12, 13.	1903	Feb. 16-18; Dec. 13...	July 9.
1898	Feb. 2; Dec. 13, 31.....	Aug. 20, 30.			
1899	Jan. 1, 28-31; Feb. 4-13, 27; Dec. 31.	Aug. 27.			

IOWA.

Central District: HARDIN COUNTY. Station: IOWA FALLS.

J. B. PARMELEE, Observer.

[Established by Weather Bureau in March, 1892. Latitude, 42° 33' N. Longitude, 93° 15' W. Elevation, 1,027 feet.]

This station is located a little over a mile beyond the eastern limits of the city of Iowa Falls, on a slightly rolling open prairie, and has an estimated elevation of 75 feet above the bottom lands of the Iowa River, which is about 1 mile distant. The thermometer shelter is of the standard pattern and is attached to the north side of the observer's dwelling house. The height of the thermometers above ground is 5 feet. The rain gage is exposed about 50 feet west of the building and 40 feet from some trees 12 to 15 feet high. The top of the gage is 18 inches above the ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	20	29	58	11	-22	29	14	1.1	4	0.9	2.1	8.4	12.0	NW.	
January.....	16	26	57	6	-33	22	3	0.8	4	0.7	1.6	6.3	6.0	NW.	
February.....	16	26	64	6	-28	25	10	1.0	5	0.2	0.8	8.4	10.0	NW.	
Winter mean.....	17	27	.....	8	.....	.....	.....	2.9	13	1.8	4.5	23.1	.....	NW.
March.....	31	41	87	21	-10	38	22	1.6	7	1.6	2.2	5.1	6.0	NW.	
April.....	48	60	89	36	14	52	40	2.8	9	4.8	1.1	1.0	5.0	NW.	
May.....	60	72	94	47	27	65	54	3.9	10	1.6	5.9	0.0	0.0	NE.	
Spring mean.....	46	58	.....	35	.....	.....	.....	8.3	26	8.0	9.2	6.1	.....	NW.
June.....	68	81	96	55	34	71	62	4.6	11	2.8	10.0	0.0	0.0	SE.	
July.....	73	87	105	59	36	80	69	4.1	7	0.1	11.3	0.0	0.0	SE.	
August.....	70	83	98	57	37	76	67	3.3	8	1.6	7.7	0.0	0.0	SE.	
Summer mean.....	70	84	.....	57	.....	.....	.....	12.0	26	4.5	29.0	0.0	.....	SE.
September.....	61	74	98	48	19	69	55	3.2	7	1.6	3.5	0.0	0.0	NW.	
October.....	50	63	89	37	6	57	42	2.2	6	3.8	1.6	T.	T.	NW.	
November.....	32	42	73	22	-12	42	27	1.2	5	0.2	1.9	4.1	7.0	NW.	
Fall mean.....	48	60	.....	36	.....	.....	.....	6.6	18	5.6	7.0	4.1	.....	NW.
Annual mean.....	45	57	105	34	-33	.....	.....	29.8	83	19.9	49.7	33.3	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 7, 22-25, 29; Feb. 4, 21, 24; Dec. 27.	July 9, 15-18, 25-27, 29; Aug. 7.	1899	Jan. 1, 28-31; Feb. 4, 5, 7-13, 27.	July 22, 23; Aug. 23; Sept. 5, 6.
1895	Jan. 7, 10, 11, 23, 25-27, 29; Feb. 1-11.	July 5, 6; Aug. 7-9.	1900	Jan. 30, 31; Feb. 6, 9, 15, 16.	July 3.
1896	Jan. 3, 4; Feb. 20.....	None.	1901	Feb. 10; Dec. 13-15, 18-20.	June 26, 27; July 9-17, 19-26.
1897	Jan. 23-27, 29; Feb. 25-27; Mar. 14; Nov. 29; Dec. 16-18, 21-24.	June 13, 14, 17; July 3, 7-9.	1902	Jan. 27-29, 31; Feb. 2-5; Dec. 8, 25, 26.	None.
1898	Jan. 1; Feb. 1, 2; Nov. 26; Dec. 8, 9, 31.	July 17-19, 24.	1903	Feb. 5, 16-18; Dec. 13, 25, 26, 30.	Do.

IOWA.

Central District: GRUNDY COUNTY. Station: GRUNDY CENTER.

E. S. KING, Observer.

[Established by the Weather Bureau in 1892. Mr. Geo. W. Ellis, observer, succeeded by Mr. E. S. King in 1900. Latitude, 42° 23' N. Longitude, 92° 40' W. Elevation, about 1,000 feet.]

This station is located on the farm of the observer, about 6 miles south of the railway station in Grundy Center, and on a hill surrounded by a grove of maples and evergreens. The station is about 40 feet above the level of the railway station, and the country surrounding is a rolling prairie, with farm groves and willow rows at intervals. The thermometers (maximum and minimum) are exposed in a shelter built according to the directions issued by the Weather Bureau to observers. The door faces the north, and the instruments are not exposed to the direct rays of the sun. The height of the thermometers above sod is 5 feet. The rain gage is 12 feet north of the shelter, and 50 feet from any building or tree; the top is about 3 feet above the ground. The shelter and gage are well protected from driving winds by groves on the north and west and by the farm buildings more than 100 feet distant on the south.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	21	30	60	12	-25	29	16	1.0	5	1.0	2.0	5.3	8.0	NW.
January.....	17	27	60	8	-26	22	5	0.7	5	1.0	1.2	6.1	8.0	NW.
February.....	17	27	63	7	-29	26	11	0.7	4	0.5	0.8	5.5	6.0	NW.
Winter mean.....	18	28		9				2.4	14	2.5	4.0	16.9		NW.
March.....	32	42	89	22	-9	38	23	1.7	7	2.4	2.1	4.5	8.0	SE.
April.....	49	61	89	37	12	53	44	3.3	10	3.3	1.7	0.7	3.0	SE.
May.....	60	71	92	48	29	64	55	5.0	12	1.5	7.1	0.0	0.0	SE.
Spring mean.....	47	58		36				10.0	28	7.2	10.9	5.2		SE.
June.....	69	80	96	57	37	74	64	5.9	11	2.7	16.0	0.0	0.0	SE.
July.....	73	85	105	60	43	80	70	4.4	8	0.9	8.7	0.0	0.0	S.
August.....	71	83	99	58	38	77	67	3.7	7	1.7	9.8	0.0	0.0	S.
Summer mean.....	71	83		58				14.0	26	5.3	34.5	0.0		S.
September.....	62	75	99	50	20	69	56	3.8	8	2.2	4.7	0.0	0.0	S.
October.....	52	64	89	39	11	60	45	2.6	11	3.4	1.6	0.2	2.0	NW.
November.....	33	44	73	23	-10	42	27	1.2	6	0.5	2.3	2.0	3.0	NW.
Fall mean.....	49	61		37				7.6	20	6.1	8.6	2.2		NW.
Annual mean.....	46	57	105	35	-29			34.0	88	21.1	58.0	24.3	8.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 7, 23-25; Feb. 20, 21.	June 13, 15, 20, 21; July 16-19, 23, 26, 27, 30; Aug. 7-10.	1900	Jan. 28, 30, 31; Feb. 1, 6, 9, 12, 15, 16.	None.
1895	Jan. 7, 11, 23, 26, 27, 29, 31; Feb. 1-4, 6-10.	July 16.	1901	Feb. 10; Dec. 14, 15, 18-20.	July 4, 9-16, 19-26.
1896	Jan. 3, 4.	July 14; Aug. 4, 8.	1902	Jan. 26-28; Feb. 2-5, 8, 9; Dec. 8, 25.	None.
1897	Jan. 24-27; Feb. 26, 27; Dec. 21-24.	July 7-9; Aug. 1; Sept. 5.	1903	Jan. 12; Feb. 16-18; Dec. 13, 14, 26, 30.	Do.
1898	Feb. 1, 2; Nov. 26; Dec. 8, 13, 31.	July 19, 24; Aug. 30.			
1899	Jan. 1, 7, 28-31; Feb. 2, 4, 7-13, 27; Dec. 30, 31.	Aug. 24; Sept. 5, 6.			

IOWA.

East Central District: BUCHANAN COUNTY. Station: INDEPENDENCE.

E. F. WULFKE, Observer.

[Established September, 1876. Latitude, 42° 25' N. Longitude, 92° 6' W. Elevation, approximately 960 feet.]

This station is located near the southwestern limits of the town, on grounds of the State hospital, which is situated on the highest point within a distance of 2 miles. The maximum and minimum thermometers are exposed in a shelter about 180 feet east of the main building. There is a thin grove about 40 feet south and east. The shelter is a small house 3 by 3 feet, and 6 feet in height, exclusive of the roof. The house is constructed of latticed work and is covered by a square mortised roof. It rests on blocks of wood 4 inches high, which rest on a stone flagging. It is floorless, except a latticed platform 3 feet above the stone flagging. The thermometers are secured to a board in the center, about 1½ feet above the latticed platform.

The rain gage is exposed on the ground and is located about 45 feet north of the shelter.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	21	29	56	13	-22	29	16	1.0	5	0.5	1.7	6.1	10.0	NW.
January.....	17	26	57	8	-28	23	7	0.9	5	0.9	0.9	7.5	5.0	NW.
February.....	16	26	60	7	-29	24	11	1.0	5	0.9	1.1	7.7	6.9	NW.
Winter mean.....	18	27		9				2.9	15	2.3	3.7	21.3		NW.
March.....	32	41	87	23	-9	40	23	1.4	6	1.6	1.5	4.6	6.0	NW.
April.....	48	60	89	36	9	52	42	2.9	6	1.6	1.1	2.8	4.5	SE.
May.....	59	71	90	47	28	63	55	4.1	10	2.0	10.5	T.	T.	SE.
Spring mean.....	46	57		35				8.4	22	5.2	13.1	7.4		SE.
June.....	68	79	100	56	35	71	59	4.1	9	2.8	9.0	0.0	0.0	SE.
July.....	73	86	106	60	44	81	70	3.8	6	2.1	9.5	0.0	0.0	S.
August.....	70	83	100	58	37	73	65	2.1	5	1.4	4.4	0.0	0.0	SE.
Summer mean.....	70	83		58				10.0	20	6.3	22.9	0.0		SE.
September.....	62	75	96	50	18	68	56	2.8	5	3.2	3.3	0.0	0.0	NW.
October.....	51	63	89	39	16	58	44	2.3	5	2.4	1.6	0.4	4.0	NW.
November.....	34	44	73	24	-10	43	30	1.0	5	0.3	1.4	2.9	4.0	NW.
Fall mean.....	49	61		38				6.1	15	5.9	6.3	3.3		NW.
Annual mean.....	46	57	106	35	-29			27.4	72	19.7	46.0	32.0	10.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 7, 24, 25; Feb. 21.	June 14; July 12, 16-19, 23, 24, 26-30; Aug. 1, 8, 9.	1900	Jan. 28, 30, 31; Feb. 6, 9, 16.	None.
1895	Jan. 8, 11, 12, 24, 27, 28, 30; Feb. 1-5, 7-11, 16.	July 7, 16, 18.	1901	Jan. 1, 30; Feb. 40; Dec. 13-15, 18-20	June 25-28, 30; July 1, 4, 9-26.
1896	Jan. 3, 4; Feb. 20.	July 14.	1902	Jan. 27, 28; Feb. 2, 5, Dec. 8, 25, 26.	None.
1897	Jan. 24-27; Feb. 26, 27; Dec. 16, 18, 21-24.	July 8.	1903	Feb. 16-18; Dec. 13 26, 30.	Do.
1898	Feb. 12; Dec. 9, 13, 14, 31.	July 19; Aug. 30; Sept. 5.			
1899	Jan. 29-31; Feb. 4, 5, 7-13, 27; Mar. 7.	None.			

IOWA.

Upper Mississippi Valley: DUBUQUE COUNTY. Station: DUBUQUE.

ORIN PARKER, Observer.

[Established by the Weather Bureau July, 1873. Latitude, 42° 30' N. Longitude, 90° 44' W. Elevation, 639 feet.]

The station has been within the central portion of the lower part of Dubuque, Iowa, since its establishment. The office was located at the southeast corner of Main and Sixth streets from July 2, 1873, to July 1, 1889; at the southeast corner of Main and Fifth streets from July 1, 1889, to June 1, 1894; at 568 Main street from June 1, 1894, to January 12, 1897; at northwest corner of Main and Ninth streets from January 12, 1897, to January 7, 1902; at northeast corner of Locust and Ninth streets from January 7, 1902, to December 31, 1903. Roof shelter. Elevations above ground: Anemometer, 117 feet; thermometers, 100 feet. During the entire series of observations the office has been located near the center of population of the lower part of the city, on the bench between the Mississippi River and the bluffs that hem the river in along its course about this point.

Tabulated data are from the following periods of observation: Snowfall, twenty years; humidity, fifteen years; sunshine, eight years; wind direction, five years. Remainder of data is from the full period of observation, thirty years—January 1, 1874, to December 31, 1903. The frost data are partly from record of frosts in the daily journal and partly from temperatures of 32° or lower.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	25	32	67	18	-24	40	13	1.6	9	0.4	1.6	8.5	9.9	84	1.19	76	1.35	117	41	NW.
January.....	18	26	63	10	-32	34	7	1.5	9	1.1	1.9	10.0	12.0	84	0.87	77	1.04	149	50	NW.
February.....	21	30	67	13	-31	36	6	1.4	9	1.2	3.7	8.6	11.3	84	0.87	79	1.12	157	53	NW.
Winter mean.....	21	29	.....	14	.....	.....	.....	4.5	27	2.7	7.2	27.1	.....	84	0.98	77	1.17	141	48	NW.
March.....	33	42	86	25	-12	47	26	2.2	10	3.1	3.8	8.5	10.1	81	1.38	73	1.73	158	43	NW.
April.....	49	59	88	40	14	55	45	3.0	10	2.3	1.3	0.8	5.5	76	2.42	61	2.67	234	58	NW.
May.....	61	71	94	51	26	69	54	4.3	13	1.8	2.2	T.	T.	76	3.56	62	4.20	257	57	NW.
Spring mean.....	48	57	.....	39	.....	.....	.....	9.5	33	7.2	7.3	9.3	.....	78	2.45	65	2.87	216	53	NW.
June.....	70	79	99	60	39	74	65	4.7	11	2.2	7.6	0.0	0.0	78	5.29	63	5.89	285	63	SE.
July.....	75	85	106	64	40	82	68	4.7	9	0.2	10.5	0.0	0.0	79	6.10	62	6.78	323	70	NW.
August.....	72	82	100	62	41	78	67	2.9	9	1.3	2.5	0.0	0.0	81	5.49	64	4.86	278	65	NW.
Summer mean.....	72	82	.....	62	.....	.....	.....	12.3	29	3.7	20.6	0.0	.....	79	5.63	63	5.84	296	66	NW.
September.....	64	74	97	54	24	70	59	4.2	10	3.0	10.3	0.0	0.0	82	4.26	66	4.78	229	61	NW.
October.....	52	61	89	43	15	62	46	2.6	8	1.5	6.7	0.2	3.5	82	2.80	68	3.19	198	58	NW.
November.....	36	44	74	28	-12	44	28	1.9	8	1.5	3.2	2.5	5.5	82	1.75	74	1.96	133	45	NW.
Fall mean.....	51	60	.....	42	.....	.....	.....	8.7	26	6.0	20.2	2.7	.....	82	2.94	69	3.31	187	55	NW.
Annual mean.....	48	57	106	39	-32	.....	.....	35.0	115	19.6	55.3	39.1	12.0	81	3.00	69	3.30	210	55	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 13-16; July 12, 16-19, 24, 26, 27, 30; Aug. 1, 7, 8; Sept. 1.	1899	Jan. 28-31; Feb. 7-12..	Sept. 5.
1895	Jan. 12, 27, 28, 30; Feb. 1, 2, 4, 7-11.	July 7, 16; Aug. 9, 13, 16; Sept. 10, 11.	1900	Jan. 31; Feb. 16.....	Aug. 5.
1896	Jan. 4.....	June 20; July 14; Aug. 4, 5, 8.	1901	Jan. 1; Feb. 6; Dec. 14, 15, 20.	June 25-28; July 1, 4, 9, 10, 14-17, 19-21 23-26.
1897	Jan. 24-27; Feb. 27....	June 17; July 8, 9.	1902	Jan. 27, 28; Feb. 4.....	None.
1898	Dec. 31.....	July 19.	1903	Feb. 17, 18; Dec. 13, 26.	Do.

IOWA.

West Central District: CARROLL COUNTY. Station: CARROLL.

MOSES SIMON, Observer.

[Established by United States Signal Service October 3, 1889. Latitude, 42° 4' N. Longitude, 94° 53' W. Elevation, 1,272 feet.]

This station is located in the northern part of the town of Carroll, on a slight elevation, and the surrounding farming country north and west is undulating. The maximum and minimum thermometers are exposed in a standard shelter furnished by the United States Weather Bureau, set on posts about 5 feet above the lawn and 30 feet from a cottage. The rain gage is exposed on the ground about 40 feet west of the instrument shelter.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	22	31	60	13	-20	30	16	0.9	4	1.0	2.6	6.5	10.0
January.....	20	30	62	9	-30	24	13	0.7	3	1.2	1.4	5.6	8.5
February.....	17	29	72	7	-31	27	9	1.1	4	1.0	0.3	7.7	7.5
Winter mean.....	20	30	.....	10	.....	.....	.....	2.7	11	3.2	4.3	19.8	.....
March.....	33	44	83	22	-12	40	22	2.1	6	1.8	2.3	4.4	12.5
April.....	49	62	91	34	12	53	45	3.6	9	2.8	1.4	1.3	8.0
May.....	60	73	95	48	26	64	57	4.6	10	1.1	2.6	0.0	0.0
Spring mean.....	47	60	.....	35	.....	.....	.....	10.3	25	5.7	6.3	5.7	.....
June.....	69	81	101	57	35	72	64	4.4	10	1.5	9.3	0.0	0.0
July.....	74	87	109	61	40	83	71	4.2	8	1.7	9.5	0.0	0.0
August.....	71	84	100	58	38	77	68	4.2	7	1.6	5.6	0.0	0.0
Summer mean.....	71	84	.....	59	.....	.....	.....	12.8	25	4.8	24.4	.....	0.0
September.....	63	76	98	48	19	72	57	3.4	7	3.3	5.4	0.0	0.0
October.....	52	65	92	39	10	59	43	2.1	5	3.2	1.1	0.6	6.5
November.....	34	44	77	23	-12	43	25	1.1	4	0.3	2.5	4.0	8.5
Fall mean.....	50	62	.....	37	.....	.....	.....	6.6	16	6.8	9.0	4.6	.....
Annual mean.....	47	59	109	35	-31	.....	.....	32.4	77	20.5	44.0	30.1	12.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 7, 23-25; Feb. 21, 24; Dec. 27.	June 12, 13, 19, 21, 29, 30; July 12, 18, 19, 23-27, 29, 30; Aug. 7-12, 23, 28, 31.	1899	Jan. 27-31; Feb. 2, 4, 5, 7-9, 11-13, 26, 27; Dec. 31.	Aug. 10; Sept. 4-6.
1895	Jan. 8, 12, 13, 25, 27-29, 31; Feb. 1, 3-5, 7, 8, 10.	May 28; Sept. 17.	1900	Jan. 28, 30, 31; Feb. 9, 15-17, 26; Mar. 17.	June 26; July 3, 6.
1896	Jan. 3, 4.....	July 2, 14; Aug. 8, 9.	1901	Dec. 13-15, 18-20.....	June 27, 28, 30; July 4, 9-27; Aug. 1, 20, 25.
1897	Jan. 23-26; Mar. 14; Dec. 17, 18, 22.	July 7, 8, 31; Aug. 1, 28; Sept. 1, 2, 4-6, 12, 14.	1902	Jan. 26-28, 31; Feb. 2, 4, 5; Dec. 26.	July 16; Aug. 2.
1898	Feb. 2; Nov. 22; Dec. 8, 13.	July 24, 26; Aug. 20, 22, 30; Sept. 2.	1903	Feb. 16-18; Dec. 13...	July 9.

IOWA.

Central District: JASPER COUNTY. Station: NEWTON.

J. P. BEATTY, Observer.

[Established by the Signal Service January, 1893. Latitude, 41° 51' N. Longitude, 95° 3' W. Elevation, 965 feet.]

This station is located within the city limits of Newton, and is situated on a level plateau, forming the crest of the divide between the two branches of the Skunk River. The land is sloping and undulating toward the streams in each direction.

The thermometers are exposed, with free ventilation, on the north side of an outbuilding: they are sheltered from the falling elements and the direct rays of the sun by boards, projecting from either side and from above. The thermometers are elevated about 5 feet above the ground.

The rain gage is exposed on the ground in a garden and is 25 feet from the nearest obstruction. The height of the top of the gage above the ground is 20 inches.

The tabulated data are for the period of observation, January 1, 1893, to December 31, 1903.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	22	32	62	14	-22	32	17	1.4	5	1.3	2.1	7.4	15.0	NW.	
January.....	20	29	60	12	-27	25	11	1.0	5	0.7	1.4	8.6	7.0	NW.	
February.....	20	29	67	10	-28	25	13	1.0	5	0.6	0.7	8.0	11.0	NW.	
Winter mean.....	21	31	63	12	-26	27	14	3.4	15	2.6	4.2	24.0	.....	NW.
March.....	35	45	89	24	-6	42	27	1.6	7	2.2	1.0	5.4	9.0	NW.	
April.....	50	62	89	39	15	56	46	3.7	11	2.4	2.8	1.4	6.0	SE.	
May.....	62	73	93	50	28	65	57	4.9	12	1.1	.....	0.0	0.0	SE.
Spring mean.....	49	60	90	38	16	54	43	10.2	28	5.7	3.8	6.8	.....	SE.
June.....	70	82	99	60	41	74	64	4.2	10	1.1	8.9	0.0	0.0	SE.	
July.....	75	87	107	63	50	83	72	4.4	7	T.	7.9	0.0	0.0	S.	
August.....	72	80	104	61	43	77	69	4.5	8	4.5	7.1	0.0	0.0	SE.	
Summer mean.....	72	83	100	61	45	78	68	13.1	25	5.6	23.9	0.0	.....	SE.
September.....	64	76	99	53	22	71	58	3.0	7	2.2	5.0	0.0	0.0	SE.	
October.....	53	64	88	42	15	59	46	2.6	6	2.7	6.7	0.3	3.0	NW.	
November.....	36	46	74	26	-8	44	30	1.3	5	0.8	2.6	3.5	6.0	NW.	
Fall mean.....	51	62	80	40	10	57	44	6.9	18	5.7	14.3	3.8	.....	NW.
Annual mean.....	48	59	107	38	-28	64	54	33.6	86	19.6	46.2	34.6	15.0	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 7, 23-25; Feb. 21..	June 13, 15, 20, 27, 29, 30; July 11, 12, 16 19, 23-28; Aug. 1, 7-10.	1899	Jan. 28-31; Feb. 4, 7-13, 27; Dec. 31.	Sept. 5, 6.
1895	Jan. 11, 12, 27, 28, 30; Feb. 1-5, 7, 8, 10.	July 16; Aug. 13.	1900	Jan. 28, 31; Feb. 15, 16.	None.
1896	Jan. 3.	July 14; Aug. 4.	1901	Feb. 10; Dec. 14, 15, 18, 19.	June 26-28, 30; July 1, 2, 4, 9-26.
1897	Jan. 24-27; Feb. 26; Dec. 18.	June 17, 18; July 7-9, 31; Aug. 1, 28; Sept. 2-5, 9.	1902	Jan. 26-28; Feb. 2-4; Dec. 8.	None.
1898	Feb. 2; Dec. 13, 31....	July 19, 24; Aug. 30.	1903	Feb. 16-18; Dec. 13, 16.	Do.

IOWA.

East Central District: BENTON COUNTY. Station: BELLE PLAINE.

S. P. VAN DIKE, Observer.

[Established 1885. Latitude, 41° 53' N. Longitude, 92° 20' W. Elevation, 864 feet.]

This station is in the northern part of the town, the highest part of which is about 120 feet above the bottom lands of the Iowa River. It is on the southern slope, near the top of the elevation. A small stream flows about 40 rods to the east, and is 30 feet lower than the station. The maximum and minimum thermometers are exposed in a shelter barely sufficient to protect them from sleet on their north side and the side adjoining the dwelling. Shade trees are within a distance of 20 feet. The height of the thermometers above the sod is 5 feet.

The rain gage is 40 feet east of the house and about 18 feet from cherry trees 16 to 20 feet in height; the top of the gage is 3 feet above the ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	31	59	14	-16	31	16	1.3	5	0.8	2.4	7.2	13.5	NW.
January.....	18	27	59	9	-28	24	7	1.3	6	1.2	1.1	9.6	14.0	NW.
February.....	19	29	62	9	-32	27	14	1.5	7	0.8	2.4	8.8	9.0	NW.
Winter mean.....	20	29		11				4.1	18	2.8	5.9	25.6		NW.
March.....	34	44	87	24	-7	41	27	2.6	8	3.0	3.4	5.4	6.0	NW.
April.....	50	61	87	38	12	53	45	3.7	9	2.0	2.6	1.3	3.0	SE.
May.....	60	73	93	48	28	65	56	4.6	11	2.0	7.1	0.0	0.0	SE.
Spring mean.....	48	59		37				10.9	28	7.0	13.1	6.7		SE.
June.....	70	83	99	57	35	73	64	3.7	8	2.6		0.0	0.0	SE.
July.....	74	87	106	61	45	82	72	4.0	7	0.1	6.2	0.0	0.0	SE.
August.....	70	82	103	59	42	77	66	4.5	7	1.3	13.5	0.0	0.0	SW.
Summer mean.....	71	84		59				12.2	22	4.0	19.7	0.0		SE.
September.....	63	75	96	51	23	69	57	3.4	7	3.9	5.6	0.0	0.0	SE.
October.....	50	62	88	38	8	56	45	2.1	6	2.1	2.8	0.6	6.0	SE.
November.....	34	44	73	25	-10	43	30	1.8	6	1.2	3.1	4.1	6.0	NW.
Fall mean.....	49	60		38				7.3	19	7.2	11.5	4.7		SE.
Annual mean.....	47	58	106	36	-32			34.5	87	21.0	50.2	37.0	14.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 7, 24, 25; Feb. 21..	June 12-15; July 10-13, 16-19, 23-30; Aug. 1, 7-10, 29; Sept. 1.	1898	Feb. 1-3; Nov. 26; Dec. 9, 10, 13, 31.	June 23, 30; July 15, 16, 18, 19; Sept. 3.
1895	Jan. 12, 13, 27, 28, 30; Feb. 1-5, 7-10.	July 5-7, 14, 16-18; Aug. 9, 13, 16, 27.	1899	Jan. 29-31; Feb. 7-12..	Sept. 5.
1896	Jan. 3, 4.	July 13, 14; Aug. 5.	1900	Feb. 15, 16.	Aug. 5.
1897	Jan. 24-27; Feb. 26, 27; Nov. 29; Dec. 18, 22, 24.	June 16; July 7-9; Aug. 1, 28; Sept. 13.	1901	Feb. 10.	June 25-28, 30; July 1, 4, 9-16, 20-27.
			1902	Jan. 27, 28; Feb. 2-5.	None.
			1903	Feb. 16-18; Dec. 13, 26, 30.	Do.

IOWA.

East Central District: IOWA COUNTY. Station: AMANA.

CONRAD SCHADT, Observer.

[Established by Iowa Weather Service in 1875. Latitude, 41° 47' N. Longitude, 91° 55' W. Elevation, 763 feet.]

This station is located near the western end of the village of Amana. The village is about midway between the Iowa River on the south and the bluffs which form the northern boundary of the valley which is at this point about 2½ miles wide.

The maximum and minimum thermometers are exposed in a shelter attached to the north side of a small building. The shelter consists of a partly double walled and roofed box, open below, and with 3 inches space between the walls for ventilation; the outer one is 6 feet long and 1½ feet wide, and painted white. The instruments are placed 5 feet above the ground and 5 and 7½ inches, respectively, from the building. The rain gage is placed about 130 feet south of the thermometers, on the side of the street, 38 feet from the nearest building; the top of the gage is 4 feet above the ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	24	31	62	16	-17	31	18	1.3	7	1.6	2.0	4.4	7.0	NW.
January.....	20	29	60	11	-29	27	8	1.1	6	1.5	0.9	5.9	9.0	NW.
February.....	19	28	60	10	-25	25	14	1.1	6	1.7	1.1	6.7	7.0	NW.
Winter mean.....	21	29	.....	12	.....	.....	.....	3.5	19	4.8	4.0	17.0	.....	NW.
March.....	35	44	85	26	- 8	41	27	1.7	8	3.5	1.4	2.5	5.0	NW.
April.....	50	61	90	39	12	56	45	3.3	9	1.7	1.8	1.0	8.0	NW.
May.....	62	73	91	50	27	67	56	4.7	12	1.8	5.3	0.0	0.0	S.
Spring mean.....	49	59	.....	38	.....	.....	.....	9.7	29	7.0	8.5	3.5	.....	NW.
June.....	70	82	99	59	52	74	65	3.1	8	4.4	6.9	0.0	0.0	S.
July.....	75	87	104	63	47	82	73	4.4	8	1.4	6.2	0.0	0.0	S.
August.....	72	83	103	60	39	78	69	3.6	7	1.0	9.4	0.0	0.0	SW.
Summer mean.....	72	84	.....	61	.....	.....	.....	11.1	23	6.8	22.5	0.0	.....	S.
September.....	51	75	97	53	18	69	58	3.3	8	1.7	6.4	0.0	0.0	S.
October.....	52	63	86	41	9	59	44	2.3	6	1.4	3.7	0.0	0.0	NW.
November.....	36	45	71	27	- 6	45	32	1.3	6	0.9	1.8	1.4	4.0	NW.
Fall mean.....	51	61	.....	40	.....	.....	.....	6.9	20	4.0	11.9	1.4	.....	NW.
Annual mean.....	48	58	104	38	-29	.....	.....	31.2	91	22.6	46.9	21.9	9.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1893, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1893	Jan. 3, 10, 13-15, 17, 19, 20; Feb. 1, 3, 4, 7, 8; Dec. 1.	July 13, 23, 24; Aug. 9, 10.	1898	Feb. 1; Dec. 31.....	July 19, 24, 27.
1894	Jan. 24, 25; Feb. 21...	June 13-15, 20-22, 29; July 1, 11, 12, 16-18, 24, 26-28, 30; Aug. 1, 7-10.	1899	Jan. 29-31; Feb. 8-13..	Sept. 5.
1895	Jan. 11, 27, 28, 30; Feb. 1-5, 7-11.	July 5, 7, 16; Aug. 13.	1900	Jan. 31.....	None.
1896	Jan. 3.....	July 14; Aug. 5.	1901	Feb. 6, 10; Dec. 14, 15, 18-20.	June 25-28, 30; July 1, 4, 9-16, 19-27.
1897	Jan. 24-26; Feb. 26, 27; Dec. 18, 22.	June 17; July 7-9; Aug. 1.	1902	Jan. 27, 28; Feb. 3, 5, 15.	None.
			1903	Feb. 17, 18; Dec. 13, 26.	Do.

IOWA.

East Central District: LINN COUNTY. Station: CEDAR RAPIDS.

W. J. GREENE, Observer.

[Established by Signal Service in December, 1884. Latitude, 41° 59' N. Longitude, 91° 43' W. Elevation, 731 feet.]

This station is located within the city limits, near the power house of the Cedar Rapids Electric Light and Power Company, on the south bank of Cedar Lake, the exposure on the west and north being water surface for the distance of about three-fourths of a mile. To the eastward, about 300 feet distant, the ground begins to rise, and residences are located upon ground about 40 feet above the station.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter located 27 feet from the southwest corner of the electric light building, the front facing toward the southwest. The height of the thermometers above ground is 5 feet. The rain gage is about 10 feet north of the shelter and 37 feet distant from the power house. The top of the gage is 5 feet 10 inches above the ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	24	32	61	16	-16	33	17	1.4	6	1.8	2.0	5.6	11.0	NW.
January.....	21	30	63	12	-23	28	9	9.4	6	1.0	1.0	8.0	12.0	NW.
February.....	20	29	68	10	-25	27	14	1.3	5	1.8	0.9	7.0	9.0	NW.
Winter mean.....	22	30	.....	13	.....	.....	.....	12.1	17	4.6	3.9	20.6	.....	NW.
March.....	36	44	84	27	- 5	43	27	1.8	7	2.7	1.6	3.5	6.0	NW.
April.....	52	62	94	41	15	59	46	2.9	9	1.2	1.3	1.0	7.0	NW.
May.....	63	74	100	52	30	70	57	3.9	13	1.9	4.6	0.0	0.0	S.
Spring mean.....	50	60	.....	40	.....	.....	.....	8.6	29	5.8	7.5	4.5	.....	NW.
June.....	71	82	103	60	39	74	65	3.4	10	3.9	5.6	0.0	0.0	S.
July.....	76	87	107	64	50	83	74	3.2	8	2.7	7.5	0.0	0.0	SW.
August.....	73	84	100	62	42	79	69	3.5	8	0.4	9.9	0.0	0.0	SE.
Summer mean.....	73	84	.....	62	.....	.....	.....	10.1	26	7.0	23.0	0.0	.....	SE.
September.....	65	76	102	54	22	71	59	3.2	9	2.6	4.8	0.0	0.0	SE.
October.....	54	64	90	43	16	61	46	2.1	5	1.4	2.7	0.4	4.5	NW.
November.....	37	46	73	28	- 5	47	32	1.0	5	0.6	1.5	1.9	3.5	NW.
Fall mean.....	52	62	.....	42	.....	.....	.....	6.3	19	4.6	9.0	2.3	.....	NW.
Annual mean.....	49	59	107	39	-25	.....	.....	37.1	91	22.0	43.4	27.4	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	July 12, 26, 27; Aug. 8, 9.	1899	Jan. 29-31; Feb. 8-12..	June 19; July 21-25; Aug. 9, 11, 17, 19, 27, 28, 30; Sept. 2, 4-6.
1895	Jan. 27, 28, 30; Feb. 1, 4, 5, 8.	July 7, 16, 18.	1900	Jan. 31; Feb. 16.....	July 3, 4, 14; Aug. 3, 5-8, 10, 11, 19-21; Sept. 5.
1896	Jan. 3.....	May 6-8; June 14, 15, 17, 20, 21, 24, 30; July 2, 12-14, 26; Aug. 4, 5, 8.	1901	Jan. 1; Feb. 6, 10; Dec. 13-15, 18, 20.	June 24-28, 30; July 1, 2, 4, 9-16, 18-27
1897	Jan. 24-27; Feb. 25, 27; Dec. 18, 22-24.	June 13, 14, 17; July 3, 6-9, 31; Aug. 1, 28; Sept. 3, 8, 9.	1902	Jan. 27, 28; Feb. 3, 15..	None.
1898	Jan. 27; Feb. 1; Dec. 31.	June 29; July 1, 2, 19, 24, 27; Aug. 22, 30; Sept. 2.	1903	Feb. 17, 18; Dec. 13, 14, 26, 27.	June 30; July 7, 9; Aug. 24.

IOWA.

East Central District: JOHNSON COUNTY. Station: IOWA CITY.

A. A. VEBLEN, Observer.

[Established in 1857. Latitude, 41° 40' N. Longitude, 91° 31' W. Elevation, 685 feet.]

The station is in the northern part of Iowa City. The instrument shelter is about 500 feet east of the Iowa River, 60 feet above the river bottom, and 30 feet below the summit of the ridge, which slopes westward to the stream. Except to the east and southeast, the edge of the residence portion of the town, the exposure is that of open country along and across the valley, here one-half to three-quarters of a mile wide.

The thermometers are housed in a shelter about 30 feet west of the residence of the observer, and this shelter is placed above and out from a high retaining wall, giving it a free exposure. It is a box with solid sloping roof, has no bottom, and is open toward the north. The remaining three sides are of slat work, giving good ventilation. The north side is left open because the situation is such as to give very little trouble from reflecting influences of surrounding objects, while the circulation is greatly improved. The dimensions are 4 feet in height, 3 feet east and west, and 20 inches north and south. The thermometers are fastened halfway up near the south wall. The height of the thermometers above ground is 4 feet.

The surroundings are sodded ground, garden beds, shrubbery, and stone wall. The bottom of rain gage is raised above the sod about 4 inches and stands about 55 feet west of the shelter and 20 feet lower, on a knoll which rises 40 feet above the river bottom and forms part of the irregular slope east of the river.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	25	34	66	16	-18	33	18	1.5	5	2.3	2.2	5.0	8.0	NW.
January.....	22	32	64	11	-30	27	10	1.6	4	1.1	1.3	10.2	13.5	NW.
February.....	20	30	63	9	-26	27	14	1.4	4	2.0	0.8	9.1	11.0	NW.
Winter mean.....	22	32		12				4.5	14	5.4	4.3	24.3		NW.
March.....	36	47	87	26	-3	44	29	2.1	7	3.6	1.3	3.0	5.0	NW.
April.....	52	64	90	39	13	57	48	3.2	8	2.4	1.9	1.2	8.0	NW.
May.....	62	75	95	50	29	68	57	4.3	12	1.5	3.8	0.0	0.0	NW.
Spring mean.....	50	62		38				9.6	27	7.5	7.0	4.2		NW.
June.....	71	83	102	59	38	74	65	3.0	9	3.3	7.5	0.0	0.0	S.
July.....	76	88	108	63	48	83	74	4.5	8	1.3	6.9	0.0	0.0	SW.
August.....	72	85	99	60	43	77	70	3.3	6	0.7	10.9	0.0	0.0	SW.
Summer mean.....	73	83		61				10.8	23	5.3	25.3	0.0		SW.
September.....	65	78	101	52	20	71	60	3.5	8	2.6	5.9	0.0	0.0	S.
October.....	54	67	91	41	10	61	46	2.4	6	1.8	3.1	T.	4.0	S.
November.....	37	47	81	27	6	45	34	1.5	5	0.8	2.2	2.1	5.0	NW.
Fall mean.....	52	64		40				7.4	19	5.2	11.2	2.1		S.
Annual mean.....	49	61	108	38	-30			32.3	83	23.4	47.8	30.6	13.5	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 21...	June 29; July 12, 16-18, 24, 26, 27; Aug. 1, 7-9; Sept. 1.	1899	Jan. 29-31; Feb. 5, 7-13.	Aug. 18, 19; Sept. 4-6.
1895	Jan. 11, 12, 27, 28, 30; Feb. 1, 2, 4, 5, 7-11.	June 24; July 5, 7, 14, 16; Aug. 13, 16; Sept. 10, 11.	1900	Jan. 31; Feb. 16.....	June 25; July 3, 4, 14; Aug. 4-10, 18.
1896	Jan. 3, 4.....	July 12-14; Aug. 4, 5, 8.	1901	Jan. 1; Feb. 6, 10; Dec. 14, 15, 18-20.	June 24-28, 30; July 1, 2, 4, 9-27; Aug. 7, 13, 14, 28; Sept. 6, 7.
1897	Jan. 24-26; Dec. 21, 22.	June 14, 17; July 3, 7-10; Aug. 1, 2; Sept. 5, 8, 9, 12, 13.	1902	Jan. 27, 28; Feb. 3-5.	May 20.
1898	Feb. 1; Dec. 31.....	July 17-19, 23, 24, 27; Aug. 30; Sept. 2.	1903	Feb. 17, 18; Dec. 13-16, 26, 27.	July 1, 8, 10; Aug. 24.

IOWA.

East Central District: CLINTON COUNTY. Station: CLINTON.

LUKE ROBERTS, Observer.

[Established 1879. Latitude, 41° 50' N. Longitude, 90° 11' W. Elevation, 591 feet.]

Clinton is located on the west bank of the Mississippi River, 39 miles above Davenport, at about the most easterly limit of Iowa. The valley or "bottom" on the west bank commences at a precipitous bluff at the northern end of the city. This bluff skirts the city on the west, diminishing in height as it recedes to the westward. This station is about half way between the river and the bluffs, and very near the altitude of the Chicago, Milwaukee and St. Paul Railway track.

The thermometer shelter is about 2 feet from the north side of the observer's house, the height of that wing of the house being about 13 feet, and is distant from the main part of the house about 38 feet; no other building is nearer than 35 feet at the north. The shelter is 4 feet right to left, 2 feet wide, and 2 feet high, exclusive of the roof, which rises 16 inches, with a space of 6 inches between the two sides for ventilation. The bulbs of the maximum and minimum thermometers are 53 inches above the ground. Two rain gages, located about 50 feet apart, are used to note the effects of currents of air during storms, a difference being observed when rain is accompanied by high wind. The tops of the gages above the ground is 2 feet 8 inches.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperature by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	25	33	61	17	-20	31	19	1.2	6	0.9	0.4	3.5	5.0	W.
January.....	22	31	62	12	-28	27	8	1.7	6	1.4	3.6	7.2	13.0	W.
February.....	20	30	62	10	-24	28	13	1.6	7	1.4	2.4	10.5	13.0	W.
Winter mean.....	22	31	.....	13	.....	.....	.....	4.5	19	3.7	6.4	21.2	.....	W.
March.....	36	45	85	26	-3	43	29	2.7	8	3.9	4.7	5.9	11.0	NE.
April.....	51	63	90	39	14	57	48	2.7	8	0.8	3.5	0.8	3.0	NE.
May.....	62	75	94	50	28	69	58	4.6	13	1.7	4.5	0.0	0.0	S.
Spring mean.....	50	61	.....	38	.....	.....	.....	10.0	29	6.4	12.7	6.7	.....	NE.
June.....	71	84	102	58	37	74	66	4.1	9	3.2	8.0	0.0	0.0	NW.
July.....	75	88	106	62	41	81	73	4.1	8	4.3	1.9	0.0	0.0	S. a
August.....	72	85	100	60	40	78	69	3.1	6	0.5	7.9	0.0	0.0	SW.
Summer mean.....	73	86	.....	60	.....	.....	.....	11.3	23	8.0	17.8	0.0	.....	SW.
September.....	64	76	98	52	19	69	60	3.6	7	2.5	2.8	0.0	0.0	S.
October.....	53	65	88	41	13	59	45	1.9	7	0.8	5.0	0.5	5.0	W.
November.....	36	46	73	27	-3	45	33	1.6	7	0.8	1.4	2.8	7.0	NW.
Fall mean.....	51	62	.....	40	.....	.....	.....	7.1	21	4.1	9.2	3.3	.....	NW. a
Annual mean.....	49	60	106	38	-28	.....	.....	32.9	92	22.2	46.1	31.2	13.0	W.

a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 21....	June 12-15, 29; July 1, 10, 12, 15-18, 24, 26, 27, 30; Aug. 1, 7-9.	1900	Feb. 16, 17.....	July 2-6, 14, 15; Aug. 4-11, 18, 20.
1895	Jan. 27, 28, 30; Feb. 1-5, 7-11.	June 3, 16; July 7, 16; Aug. 9, 16.	1901	Feb. 5, 6; Dec. 14, 15, 19, 20.	June 16, 24-28, 30; July 1, 4, 9-27.
1896	Jan. 4; Feb. 20, 21....	June 20; July 13, 14; Aug. 4, 5, 8.	1902	Jan. 27, 28; Feb. 3-5; Dec. 8.	July 17.
1897	Jan. 24-26.....	June 13-17; July 3, 7-9, 30; Aug. 1, 28.	1903	Feb. 17, 18; Dec. 13, 15, 26.	July 2, 7-9, 28.
1898	None.....	July 19, 24.			
1899	Jan. 29-31; Feb. 4, 7-13, 27.	Aug. 11; Sept. 5.			

IOWA.

Eastern Slope: SCOTT COUNTY. Station: DAVENPORT.

J. M. SHERIER, Observer.

[Established by Signal Service, May 23, 1871. Latitude, 41° 30' N. Longitude, 90° 38' W. Elevation, 590 feet.]

This station is in the post-office building, situated at the southwest corner of Fourth and Perry streets. The office building is about 150 yards from the foot of the bluffs overlooking the Mississippi River and about 400 yards from its north bank. The river here flows in a westerly direction, and the valley, which is nearly 2 miles wide, is sharply defined on both sides, rather precipitous bluffs rising to an average height of about 100 feet above the lowlands. Back of the bluffs a prairie topography prevails.

The thermometers, rain gage, and the anemometer and wind vane are all exposed on the nearly flat roof of the present office building. The bottom of the shelter is 10.4 feet above the roof, and 70.7 feet above the ground. The anemometer cups are 18.5 feet above the roof and 78.8 feet above the ground. The rain gage is 4.6 feet above the roof and 64.9 feet above the ground.

As, in many cases, the maximum and minimum temperatures recorded previous to 1874 are apparently incorrect, they have never been used in any of the station records. All mean temperatures for the years 1872 and 1873 have been determined from the tri-daily observations.

The tabulated data are from the following periods of observation: Means of maxima and means of minima, thirty years, 1874-1903; all other temperature data, thirty-two years, 1872-1903; precipitation, thirty-two years, 1872-1903; snowfall, nineteen years, 1885-1903; humidity, fifteen years, 1889-1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	27	35	65	20	-22	42	15	1.6	9	1.3	0.4	5.0	6.7	83	1.28	76	1.46	NW.	
January.....	21	29	63	13	-27	37	8	1.6	10	1.1	3.5	8.5	11.0	83	0.98	77	1.19	NW.	
February.....	24	33	67	16	-23	39	10	1.6	9	1.6	3.6	7.3	10.4	84	1.03	75	1.17	NW.	
Winter mean.....	24	32	.....	16	.....	.....	.....	4.8	28	4.0	7.5	20.8	.....	83	1.10	76	1.27	NW.
March.....	35	43	82	27	- 8	50	28	2.2	10	2.6	4.4	4.8	8.0	80	1.48	67	1.71	NW.	
April.....	50	60	87	41	14	57	41	2.7	10	0.9	5.4	0.4	4.5	74	2.53	57	2.66	NE.	
May.....	61	71	90	52	29	68	54	4.4	12	1.4	6.7	0.0	0.0	74	3.73	59	4.11	SW.	
Spring mean.....	49	58	.....	40	.....	.....	.....	9.3	32	4.9	16.5	5.2	.....	76	2.58	61	2.83	NW.
June.....	71	79	98	61	39	78	66	4.1	12	3.0	4.2	0.0	0.0	78	5.29	61	5.72	SW.	
July.....	75	85	106	66	49	83	69	3.7	8	1.5	4.8	0.0	0.0	76	6.04	56	6.12	SW.	
August.....	73	82	98	63	44	80	68	3.6	9	0.5	4.3	0.0	0.0	80	5.57	59	5.90	SW.	
Summer mean.....	73	82	.....	63	.....	.....	.....	11.4	29	5.0	13.3	0.0	.....	78	5.63	59	5.91	SW.
September.....	65	74	99	56	28	72	60	3.2	9	2.3	5.5	0.0	0.0	81	4.36	63	4.70	SW.	
October.....	53	62	90	45	17	62	47	2.4	8	0.4	1.5	0.1	3.0	81	2.86	61	2.97	SW.	
November.....	38	46	78	30	-10	46	31	1.8	8	0.8	2.5	1.9	4.4	81	1.78	69	1.91	NW.	
Fall mean.....	52	61	.....	44	.....	.....	.....	7.4	25	3.5	9.5	2.0	.....	81	3.00	64	3.19	SW.
Annual mean.....	50	58	106	41	-27	.....	.....	32.9	11.4	17.4	46.8	28.0	11.0	80	3.08	65	3.30	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 13, 20; July 1, 12, 16-18, 24, 26; Aug. 1, 8, 9.	1898	None.....	July 19, 24.
1895	Jan. 11, 12, 27, 28, 30; Feb. 1, 2, 4, 5, 7, 8, 11.	July 7, 16.	1899	Jan. 29-31; Feb. 7-12..	Aug. 3; Sept. 5.
1896	None.....	Aug. 4.	1900	None.....	July 4; Aug. 2, 4-7, 9, 18, 20.
1897	Jan. 24-26.....	June 17; July 8, 9; Aug. 1; Sept. 9, 10, 13.	1901	Dec. 14, 15, 20.....	June 25, 26, 30; July 1, 4, 9-14, 16, 19-26.
			1902	Jan. 27, 28.....	None.
			1903	Feb. 17, 18; Dec. 13, 26.	July 9.

IOWA.

Southwest District: CASS COUNTY. Station: ATLANTIC.

JAS. W. LOVE, Observer.

[Established in January, 1891. Latitude, 41° 20' N. Longitude, 95° W. Elevation, 1,164 feet.]

This station is located in Atlantic, near the building used for pumping the water supply of the city. The site of the city is elevated somewhat above the surrounding farming country, which is rolling prairie. The thermometers are exposed in a Weather Bureau standard shelter, 40 feet from any building, and their elevation above ground is 4½ feet. The rain gage is exposed on a slight elevation. The top of the gage is 4 feet above ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS JANUARY 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	24	33	65	14	-25	32	18	1.2	4	1.0	2.7	5.9	8.0	NW.
January.....	22	32	64	11	-31	27	12	0.6	3	1.0	1.7	4.4	8.0	NW.
February.....	20	31	72	9	-26	28	13	1.0	4	1.2	0.6	7.5	12.0	NW.
Winter mean.....	22	32	.....	11	.....	.....	.....	2.8	11	3.2	5.0	17.8	.....	NW.
March.....	35	46	86	24	-14	42	26	1.9	5	1.4	2.1	6.2	10.0	NW.
April.....	50	63	92	37	4	54	47	3.0	7	1.5	1.4	0.4	3.0	NW.
May.....	60	73	96	48	22	64	58	4.4	10	1.2	4.5	0.0	0.0	S.
Spring mean.....	48	61	.....	36	.....	.....	.....	9.3	22	4.1	8.0	6.6	.....	NW.
June.....	69	82	99	56	35	72	66	5.7	9	4.0	6.9	0.0	0.0	SE.
July.....	74	88	110	60	37	82	71	4.0	7	1.2	9.4	0.0	0.0	S.
August.....	72	87	105	58	33	77	69	3.8	7	0.6	4.8	0.0	0.0	S.
Summer mean.....	72	86	.....	58	.....	.....	.....	13.5	23	5.8	21.1	0.0	.....	S.
September.....	64	78	100	51	17	71	59	5.1	6	4.0	4.4	0.0	0.0	S.
October.....	52	66	96	38	8	59	45	2.7	5	3.8	2.5	0.0	0.0	NW.
November.....	35	46	78	24	-9	43	29	1.0	3	0.2	2.7	2.0	6.0	NW.
Fall mean.....	50	63	.....	38	.....	.....	.....	6.8	14	8.0	9.6	2.0	.....	NW.
Annual mean.....	48	60	110	36	-31	.....	.....	32.4	70	21.1	43.7	26.4	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 6, 7, 23-25; Feb. 20, 21, 23, 24.	June 29, 30; July 16-19, 22-27, 29, 30; Aug. 7-11, 16, 17, 22-24, 28-31.	1899	Jan. 29-31; Feb. 4, 5, 7-13, 27.	June 19; Aug. 3, 9, 10, 23; Sept. 5, 6.
1895	Jan. 12, 26, 27, 30; Feb. 1, 3-5, 7, 8, 10.	May 8, 9, 28; July 15, 16; Aug. 8, 27; Sept. 10, 11, 17, 18.	1900	Jan. 28; Feb. 9, 15, 26.	June 7, 26; July 6, 10, 13-15.
1896	None.	June 16, 19; July 2, 14; Aug. 4, 7, 15.	1901	Jan. 1, 2; Feb. 10, 12; Dec. 13-15, 18-20.	June 14, 25-28, 30; July 3, 4, 9-27, 29; Aug. 1, 7, 15, 16, 19-21, 25, 28.
1897	Jan. 24-26; Feb. 26; Mar. 14; Dec. 17, 18, 21.	June 17, 18; July 7-9, 22, 23, 29-31; Aug. 1, 2; Sept. 1-5, 12, 13.	1902	Jan. 27, 28, 31; Feb. 1-4, 7; Dec. 7.	Aug. 2.
1898	Dec. 8, 13, 31.....	July 19, 24, 26; Aug. 16, 20-22, 25, 30; Sept. 2.	1903	Feb. 5, 16-18; Dec. 13.	July 3, 8, 9, 16.

IOWA.

South Central District: ADAIR COUNTY. Station: GREENFIELD.

J. C. CULVER, Observer.

[Established in 1891. Latitude, 41° 25' N. Longitude, 94° 30' W. Elevation, about 1,350 feet.]

This station is located in the town of Greenfield, the county seat of Adair County. The town plat is elevated and the surrounding country is quite broken and diversified, with many depressions, streams, and ridges and a considerable number of natural groves.

The thermometers are attached to a board which is fastened to the north end of a small one-story building. Boards 30 inches long and 10 inches wide are attached also to the building in a vertical position on each side of the thermometers, in order to shield them from the morning and evening sun; a board 12 inches wide is fastened to the upper ends of the vertical boards, forming a roof to this improvised shelter. Fifty feet north and 50 feet west of the building are two trees, each 60 feet high.

The height of the thermometers above ground is 4½ feet.

The rain gage is exposed on a lawn. The gage is of the Weather Bureau standard and the height of its top above ground is 3.2 feet.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Gross test depth in 24 hours.	
December.....	24	34	63	14	-14	32	19	1.0	7	0.9	2.0	6.8	11.3	NW.
January.....	22	33	64	11	-25	26	11	0.7	6	0.9	0.9	5.3	5.4	NW.
February.....	20	31	69	10	-29	30	13	1.0	6	1.0	0.4	7.2	5.3	NW.
Winter mean.....	22	33		12				2.7	19	2.8	3.3	19.3		NW.
March.....	35	47	73	24	- 9	43	26	1.9	8	1.4	1.5	4.2	6.2	
April.....	51	63	95	37	12	56	47	2.9	10	2.7	1.2	1.1	4.4	
May.....	61	74	95	49	28	65	58	5.2	11	1.0	6.8	0.0	0.0	
Spring mean.....	49	61		37				10.0	29	5.1	9.5	5.3		
June.....	70	82	100	59	39	74	64	4.9	11	2.9	6.8	0.0	0.0	S.
July.....	75	87	106	63	43	82	72	3.5	9	0.8	10.9	0.0	0.0	S.
August.....	73	85	102	61	40	78	69	3.7	8	0.5	5.8	0.0	0.0	S.
Summer mean.....	73	85		61				12.1	28	4.2	23.5	0.0		S.
September.....	65	77	97	53	22	73	59	3.6	8	5.1	6.3	0.0	0.0	S.
October.....	54	67	92	41	10	60	47	2.3	6	2.1	2.9	0.6	4.0	S.
November.....	37	48	75	25	- 9	45	31	1.0	6	0.5	1.5	2.3	4.2	
Fall mean.....	52	64		40				6.9	20	7.7	10.7	2.9		S.
Annual mean.....	51	61	106	37	-29			31.7	100	19.8	47.0	27.5	11.3	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER, 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23-25; Feb. 21; Dec. 27.	June 12-15, 29, 30; July 10-12, 16-19, 23-27, 29, 30; Aug. 7-11, 16, 17, 28, 29, 31; Sept. 1.	1900	Jan. 28, 31; Feb. 9, 15, 16.	June 25, 26; July 13, 14.
1895	Jan. 11, 12, 26, 27, 30; Feb. 1, 3-5, 7.	May 28; July 16, 20, 28, 28; Aug. 27.	1901	Dec. 14-16, 18-20.....	June 14, 28, 30; July 1, 9-17, 19-26; Aug. 20, 21, 25, 28; Sept. 6.
1896	Jan. 3, 4.....	May 23; June 19; July 15; Aug. 8.	1902	Jan. 26, 27; Feb. 2, 4, 5; Dec. 26.	None.
1897	Jan. 24-27; Feb. 26, 27; Dec. 18.	June 17, 18; July 7-9, 31; Aug. 1, 28; Sept. 1-6, 12, 13, 28.	1903	Feb. 16-18; Dec. 13, 14, 26.	Do.
1898	Dec. 9, 13, 31.....	July 19; Aug. 20, 21, 23, 30.			
1899	Jan. 28-31; Feb. 4, 5, 7-13, 27.	Sept. 5, 6.			

IOWA.

Central Section: POLK COUNTY. Station: DES MOINES.

GEORGE M. CHAPPEL, Local Forecaster.

[Established by the U. S. Signal Service August 1, 1878. Latitude, 41° 35' N. Longitude, 93° 37' W. Elevation, 809 feet.]

Since April 1, 1889, the station has been in the United States court and post-office building.

The thermometers, anemometer, wind vane, and rain gage are all exposed on the roof of the building. The thermometers are in a standard Weather Bureau shelter, the bottom of which is 11 feet above the roof and 84 feet above the ground. The anemometer cups are 27 feet above the roof and 99 feet above the ground. The top of the rain gage is 3 feet above the roof and 75 feet above the ground.

The section of the city in which the station is located is flat, being the bottom of a basin formed by the junction of the Des Moines and Raccoon rivers, which unite about three-eighths of a mile southeast of the station, and by high hills which parallel the rivers on the east, south, and southwest, and by a range of hills which form the northern and northwestern border of the basin, and reach from the Des Moines to the Raccoon rivers.

Tabulated data are from the following periods of observation: Sunshine, ten years; humidity, fifteen years, 1889-1903; remainder of data is from the full period of observation, twenty-five and one-half years, August 1, 1878, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p.m.	Absolute, 8 p.m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.								
December.....	° F. 26	° F. 34	69	° F. 18	° F. -20	40	18	1.3	9	1.0	1.8	In. 7.6	In. 7.5	P.ct. 81	Gr.s. 1.15	P.ct. 74	Gr.s. 1.43	134	47	NW.	
January.....	20	29	64	11	-30	36	9	1.2	8	1.0	1.6	9.9	5.5	81	0.88	75	1.06	162	55	NW.	
February.....	23	32	70	14	-24	36	14	1.1	7	1.1	2.7	6.1	8.3	81	0.88	73	1.18	172	58	NW.	
Winter mean.....	23	32		14				3.6	24	3.1	5.9	23.6		81	0.97	74	1.22	156	53	NW.	
March.....	35	44	88	26	-8	43	28	1.6	9	3.0	1.8	4.9	6.0	80	1.42	66	1.71	108	54	NW.	
April.....	51	61	90	41	11	56	45	2.9	10	2.3	3.4	0.8	3.5	76	2.42	55	2.58	237	59	SE.	
May.....	61	72	94	51	28	68	54	4.8	12	1.4	3.8	T.	T.	76	3.68	53	3.71	270	60	N.	
Spring mean.....	49	59		39				9.5	31	6.7	9.0	5.7		77	2.51	58	2.67	235	58	NW.	
June.....	70	80	101	61	37	74	66	5.0	11	2.4	15.8	0.0	0.0	80	5.25	60	5.61	284	62	SW.	
July.....	75	86	109	65	48	84	69	3.7	10	1.7	5.6	0.0	0.0	84	6.49	60	6.76	327	71	SW.	
August.....	73	83	103	65	40	79	70	3.5	9	0.7	5.3	0.0	0.0	82	5.56	60	5.98	293	68	SW.	
Summer mean.....	73	83		64				12.2	30	4.8	26.7	0.0		82	5.77	60	6.12	301	67	SW.	
September.....	65	75	99	54	26	74	60	3.0	9	2.6	4.7	0.0	0.0	77	4.00	61	4.56	237	63	SW.	
October.....	53	64	91	43	14	60	48	2.8	8	2.1	6.4	0.8	1.7	80	2.73	59	2.86	227	66	N.	
November.....	37	46	76	28	-10	46	29	1.5	7	0.4	4.0	2.7	3.5	79	1.60	67	1.91	155	56	NW.	
Fall mean.....	52	62		42				7.3	24	5.1	15.1	3.5		79	2.78	62	3.11	206	62	NW.	
Annual mean.....	49	59	109	40	-30			32.4	109	19.7	56.7	32.8	8.3	80	3.00	64	3.28	225	60	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23-25.....	June 29, 30; July 12, 18, 23-27; Aug. 7-11, 17.	1898	Dec. 31.....	July 19; Aug. 22, 30.
1895	Jan. 11, 12, 27, 30; Feb. 1, 3-5, 7, 8.	July 16; Aug. 13.	1899	Jan. 29, 30; Feb. 7-13.	Aug. 23; Sept. 5, 6.
1896	None.....	July 14.	1900	Jan. 28; Feb. 15.....	July 3.
1897	Jan. 24-26; Feb. 26; Dec. 18.	July 8, 9, 31; Sept. 1-5, 12, 13.	1901	Dec. 13-15, 18-20.	June 28, 30; July 3, 4, 9-17, 19-26; Aug. 21.
			1902	Jan. 27, 28.....	None.
			1903	Feb. 18.....	Do.

IOWA.

Southeast District: WASHINGTON COUNTY. Station: WASHINGTON.

W. A. COOK, Observer.

[Established 1876. Latitude, 41° 18' N. Longitude, 91° 46' W. Elevation, 769 feet.]

This station is located on the west side of the public square. The thermometer shelter was constructed as directed by the Weather Bureau and is placed about 20 feet south of a 1½-story building. The thermometers are maximum and minimum and are elevated above the ground 5 feet 7 inches. The rain gage is a tube 2 inches in diameter and 18 inches long, of the Hinrich's pattern, and is placed about 15 feet northwest of the instrument shelter and 20 feet distant from a building. The top of the gage is 2 feet above ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	24	33	62	16	-19	31	18	1.4	5	1.7	2.5	6.6	9.0	SW.
January.....	21	31	62	12	-24	26	12	1.2	4	1.0	0.5	6.2	15.5	NW.
February.....	21	30	67	11	-26	27	15	1.2	4	1.8	1.0	8.7	12.0	NW.
Winter mean.....	22	31		13				3.8	13	4.5	4.0	21.5		NW.
March.....	35	45	88	25	-6	42	27	2.0	6	1.7	1.6	3.1	5.0	NW.
April.....	51	64	90	38	7	57	47	3.0	8	1.7	2.7	0.8	4.0	SW. ^a
May.....	62	74	92	50	27	68	59	3.3	10	2.1	2.6	0.0	0.0	SW.
Spring mean.....	49	61		38				8.3	24	5.5	6.9	3.9		SW.
June.....	70	82	100	59	35	76	64	2.4	8	1.6	7.7	0.0	0.0	SW.
July.....	76	88	106	62	48	82	72	3.6	7	1.0	7.8	0.0	0.0	NW.
August.....	72	85	102	60	40	73	68	4.0	5	0.2	12.3	0.0	0.0	SW.
Summer mean.....	73	85		60				10.0	20	2.8	27.8	0.0		SW.
September.....	65	77	101	52	24	71	59	3.2	7	1.7	3.1	0.0	0.0	NW.
October.....	54	66	92	41	14	60	47	2.2	5	1.3	5.3	0.0	0.0	NW.
November.....	36	46	76	28	-7	43	33	1.2	4	0.8	2.4	1.0	4.0	NW.
Fall mean.....	52	63		40				6.6	16	3.8	10.8	1.0		NW.
Annual mean.....	49	60	106	38	-26			28.7	73	16.6	49.5	26.4	15.5	NW.

^a Also NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 13, 20, 21, 27, 29; July 1, 8, 11, 12, 16-18, 23-28, 30; Aug. 1, 7-10, 29; Sept. 1.	1898	Feb. 1, 3; Dec. 31....	July 19, 24.
1895	Jan. 11, 12, 27, 28, 30; Feb. 1-5, 7-9.	July 7, 16; Aug. 18.	1899	Jan. 29-31; Feb. 7-13.	Aug. 3.
1896	None.....	July 14, 26; Aug. 4.	1900	Jan. 28, 31; Feb. 15, 25.	Aug. 2-11.
1897	Jan. 24-26; Dec. 18....	June 17; July 7-9; Aug. 1, 28; Sept. 5, 8, 9, 12, 13.	1901	Feb. 6, 10.....	June 24-28, 30; July 1, 2, 4, 9-16, 18-26; Aug. 7, 14; Sept. 7.
			1902	Jan. 27, 28.....	None.
			1903	Feb. 16-18; Dec. 13, 14, 26.	July 9; Aug. 23.

IOWA.

Southeast District: ADAMS COUNTY. Station: CORNING.

JEROME SMITH, Observer.

[Established in January, 1892. Latitude, 41° N. Longitude, 94° 42' W. Elevation, 1,127 feet.]

This station is 2 miles south and a half mile east of the corporate limits of the town of Corning. It is on the south slope from the lowest bottom land to the general prairie level, and about one-fourth the distance from the river to the uplands, which within half a mile rise 50 feet higher than the station.

Maximum and minimum thermometers are exposed in a Weather Bureau shelter, fastened to the middle of the north end of a barn 44 feet wide. The thermometers are about 7 feet from the ground, and there is free air circulation on all sides. The rain gage stands on the ground, 90 feet from the nearest building, 110 feet from a grove toward the west, and 200 feet from a grove toward the north. There is one small apple tree 40 feet toward the south.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	36	65	16	-13	35	21	1.7	4	0.8	3.1	5.1	10.0	NW.
January.....	23	33	66	13	-25	27	13	0.6	2	0.9	1.5	4.9	8.0	NW.
February.....	22	32	71	11	-25	31	16	0.9	3	1.7	0.5	5.6	5.6	NW.
Winter mean.....	24	34		13				3.2	9	3.4	5.1	15.6		NW.
March.....	36	47	87	25	-10	45	28	1.7	4	0.8	1.1	5.7	9.0	NW.
April.....	51	63	90	39	9	56	47	2.9	7	1.3	1.6	1.0	4.0	NW.
May.....	62	73	94	50	29	66	57	4.6	9	1.3	5.9	0.0	0.0	SE. ^a
Spring mean.....	50	61		38				9.2	20	3.4	8.6	6.7		NW.
June.....	70	81	98	59	38	74	68	4.2	8	3.6	5.7	0.0	0.0	SW.
July.....	74	86	106	63	45	81	70	4.2	7	3.3	8.7	0.0	0.0	SW.
August.....	72	84	109	61	40	78	68	4.5	6	0.4	7.8	0.0	0.0	SW.
Summer mean.....	72	84		61				12.9	21	7.3	22.2	0.0		SW.
September.....	65	77	96	53	26	73	58	2.5	6	3.1	5.0	0.0	0.0	SW.
October.....	54	66	92	41	14	60	48	2.5	4	2.3	3.4	0.5	3.0	SW.
November.....	38	48	78	27	-5	45	31	1.0	3	0.8	2.0	2.0	8.0	SW.
Fall mean.....	52	64		40				6.0	13	6.2	16.4	2.5		SW.
Annual mean.....	49	61	106	38	-25			31.3	63	20.3	46.3	24.8	10.0	SW.

^a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23-25.....	July 12, 19, 24-27; Aug. 9-11, 13.	1899	Jan. 29-31; Feb. 4, 8-13.	Sept. 5, 6.
1895	Jan. 11, 12, 26, 27, 30; Feb. 1, 3, 4, 5, 7, 8.	Sept. 17, 18.	1900	Jan. 28; Feb. 15, 26...	June 26; July 3, 6, 10, 13.
1896	None.....	June 24; July 3; Aug. 3, 11.	1901	Feb. 10; Dec. 14, 15, 19, 20.	June 26, 28-30; July 1, 3, 4, 9-26; Aug. 1.
1897	Jan. 24-26; Feb. 26; Mar. 14; Dec. 18.	July 3, 7-9, 24, 31; Aug. 2; Sept. 2, 4, 5, 13.	1902	Jan. 26-28; Feb. 2-4, 7; Dec. 26.	None.
1898	Dec. 13, 31.....	June 22, 29, 30; July 19, 24; Aug. 15, 20-23, 21-31.	1903	Feb. 16-18; Dec. 13...	Do.

IOWA.

Southwest District: PAGE COUNTY. Station: CLARINDA.

A. S. VAN SANDT, Observer.

[Established by the Signal Service in June, 1891. Latitude, 40° 44' N. Longitude, 95° 01' W. Elevation, 1,064 feet.]

This station is located near the center of the town, and is 1½ miles west of the Nodaway River, and about 100 feet above the same. Maximum and minimum thermometers are exposed in a standard shelter, 65 feet southeast of a brick church and 40 feet east of a barn. The height of the thermometers above ground is 5½ feet. The rain gage is 10 feet north and 3 feet west of the shelter. The top of the gage is 40 inches above ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	34	62	17	-19	36	18	1.0	5	1.0	2.5	6.1	12.5	NW.
January.....	24	33	67	14	-22	28	13	0.7	5	0.7	1.2	5.0	6.2	NW.
February.....	22	32	69	13	-24	30	14	1.1	5	1.4	0.3	7.3	9.0	NW.
Winter mean.....	24	33	.....	15	.....	.....	.....	2.8	15	3.1	4.0	18.4	.....	NW.
March.....	36	47	84	26	-3	42	29	1.8	6	1.2	0.9	6.3	13.0	NW.
April.....	52	64	96	40	20	55	47	3.2	8	2.1	1.8	0.7	4.5	NW.
May.....	62	74	93	51	27	65	58	4.8	10	1.4	7.2	0.0	0.0	S.
Spring mean.....	50	62	.....	39	.....	.....	.....	9.8	24	4.7	9.9	7.0	.....	NW.
June.....	71	82	102	60	34	75	66	4.7	10	4.0	11.6	0.0	0.0	S.
July.....	76	88	110	65	46	84	70	4.9	8	0.4	8.0	0.0	0.0	S.
August.....	74	86	103	63	44	81	69	4.1	8	0.2	6.8	0.0	0.0	S.
Summer mean.....	74	85	.....	63	.....	.....	.....	13.7	26	4.6	26.4	0.0	.....	S.
September.....	66	78	101	54	26	73	60	2.9	6	2.5	4.7	0.0	0.0	S.
October.....	55	67	93	43	29	60	46	2.8	6	2.8	4.2	1.2	10.0	S.
November.....	38	48	75	28	-7	46	33	1.1	5	0.6	2.0	2.0	8.0	NW.
Fall mean.....	53	64	.....	42	.....	.....	.....	6.8	17	5.9	10.9	3.2	.....	S.
Annual mean.....	50	61	110	40	-24	.....	.....	33.1	82	18.3	51.2	28.6	13.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23-25.....	June 30; July 12, 24-27; Aug. 9-13, 18.	1899	Jan. 28-31; Feb. 4,	June 18, 19, 21; July 1, 22, 23, 26; Aug.
1895	Jan. 11, 12, 27, 30; Feb. 1, 3, 5, 7, 8.	None.		7-13, 27.	1-3, 9-11, 23; Sept. 2-6.
1896	Jan. 3.....	July 14, 15; Aug. 4.	1900	Feb. 15.....	June 6, 7, 26; July 3, 6, 9, 10, 13, 31; Aug.
1897	Jan. 24, 25; Dec. 18...	June 18; July 7-9, 23, 31; Aug. 4; Sept. 1, 2.	1901	Feb. 10; Dec. 14, 15, 18-20.	1-8, 10-13, 18, 19, 21; Sept. 5, 8, 9.
1898	Dec. 31.....	June 22, 29, 30; July 1, 2, 16-19, 23-26, 28; Aug. 20-23, 29-31; Sept. 1-3.	1902	Jan. 27, 28; Feb. 2, 4.	June 10, 14, 23-30; July 1-4, 8-27; Aug.
			1903	Feb. 16-18; Dec. 13...	1, 15, 16, 19-21, 25-28.
					Apr. 20; June 10, 11; July 16, 30; Aug. 2.
					July 8-10, 16, 20, 25, 27, 28; Aug. 23.

IOWA.

South Central District: WAYNE COUNTY. Station: CORYDON.

CLARA MILLER, Observer.

[Established in May, 1893. Latitude, 40° 48' N. Longitude, 90° 20' W. Elevation, 1,100 feet.]

This station is located on a farm $5\frac{1}{2}$ miles north of Corydon, and is situated on a hill of moderate height above the surrounding farms. The ground slopes toward the west and south. The maximum and minimum thermometers are exposed in a shelter 20 feet southwest of the house. The shelter is constructed of four posts set in the ground, 3 feet apart each way, and about 5 feet high, with lattice work around the bottom up to 3 feet above ground; above that boards are nailed horizontally so that the edges of each overlap the next lower one, with an inch of air space between, and covered with a shingle roof. The thermometers are fastened to a board in the shelter and about 4 feet above the ground, the door opening eastward.

The rain gage is about 40 feet west of the house, and 15 feet distant from the nearest trees. The gage is on a slope lower than the house, and the top is $2\frac{1}{2}$ feet above ground.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.			
December.....	26	35	64	15	-18	35	19	1.5	6	0.7	2.4	6.5	11.5	NW.	
January.....	24	34	62	14	-25	28	18	1.4	5	1.2	0.8	7.6	11.0	NW.	
February.....	22	32	63	12	-25	29	16	1.4	6	1.2	1.2	8.8	12.0	NW.	
Winter mean.....	24	34	.....	14	.....	.....	.....	4.3	17	3.1	4.4	22.9	.....	NW.
March.....	37	47	88	26	- 6	43	29	2.1	9	2.4	1.1	4.7	6.2	NW.	
April.....	52	65	88	39	8	57	49	3.2	9	1.2	2.6	0.9	4.0	NW.	
May.....	62	74	90	51	27	66	59	4.4	12	1.2	4.8	0.0	0.0	NW.	
Spring mean.....	50	62	.....	39	.....	.....	.....	9.7	30	4.8	8.5	5.6	.....	NW.
June.....	70	81	99	59	37	75	64	4.3	11	1.4	6.0	0.0	0.0	SE.	
July.....	76	88	112	63	45	85	72	4.3	8	0.5	11.6	0.0	0.0	SW.	
August.....	74	86	105	61	42	79	66	4.6	8	0.4	8.6	0.0	0.0	SE.	
Summer mean.....	73	85	.....	61	.....	.....	.....	13.2	27	2.3	26.2	0.0	.....	SE.
September.....	66	79	101	53	23	75	60	4.0	9	4.9	7.6	0.0	0.0	SE.	
October.....	55	68	95	42	12	60	49	2.6	7	3.7	4.6	0.5	6.0	NW.	
November.....	38	49	76	28	- 5	47	34	1.5	7	1.7	2.4	2.0	3.5	NW.	
Fall mean.....	53	65	.....	41	.....	.....	.....	8.1	23	10.3	14.6	2.5	.....	NW.
Annual mean.....	50	62	112	39	-25	.....	.....	35.3	97	20.5	53.7	31.0	12.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 23-25.....	June 20, 28-30; July 1, 2, 11, 12, 16, 18, 19, 23, 24, 26-28, 30; Aug. 1, 7-18, 23, 25, 28-31.	1898	Dec. 13.....	July 19, 24; Aug. 21, 23.
1895	Jan. 12, 27, 30; Feb. 1-5, 7, 8.	July 16; Aug. 12, 13, 16, 17.	1899	Jan. 29-31; Feb. 4, 7-13.	Aug. 2.
1896	None.....	July 30.	1900	Feb. 15.....	Aug. 20, 21.
1897	Jan. 24-26; Feb. 26; Dec. 18.	July 8, 9, 22-24, 30, 31; Aug. 1-3, 28.	1901	Feb. 10; Dec. 14, 15, 18-20.	June 28, 30; July 1-4, 9-26; Aug. 7, 14, 15, 18-21, 25, 28.
			1902	Jan. 27; Feb. 2, 4.....	None.
			1903	Feb. 16-18; Dec. 13...	Aug. 23.

IOWA.

Southeastern District: VAN BUREN COUNTY. Station: BONAPARTE.

B. R. VALE, Observer.

[Established in May, 1891. Latitude, 40° 38' N. Longitude, 91° 50' W. Elevation, approximately, 700 feet.]

This station is located on the farm of the observer, about 5 miles distant from the town of Bonaparte, the surrounding country being undulating prairie. The maximum and minimum standard thermometers are exposed in a standard Weather Bureau shelter located under a roof 4 feet square, shaded at the north, and the instruments are about 5 feet above the ground. The shelter is 150 feet from any obstruction. The rain gage is exposed 3 feet above the surface, in a fine open space, with no obstruction within 150 feet.

The monthly mean temperature was obtained by dividing the sum of the mean maximum and the mean minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Aver- age depth.	Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	26	35	63	18	-15	34	21	1.3	4	1.3	0.9	3.7	11.0
January.....	24	34	65	14	-18	30	13	1.3	3	1.0	3.3	6.0	12.0
February.....	22	32	70	12	-23	29	16	1.3	3	1.2	1.0	7.9	8.5
Winter mean.....	24	34		15				3.9	10	3.5	5.2	17.6	
March.....	38	48	86	28	- 5	44	30	2.2	6	0.2	5.1	1.7	8.0
April.....	52	64	91	41	10	59	49	3.1	7	1.3	3.7	1.0	3.0
May.....	64	75	92	52	28	69	58	4.2	10	1.3	6.1	0.0	0.0
Spring mean.....	51	62		40				9.6	23	2.8	14.9	2.7	
June.....	72	83	102	60	38	75	66	4.2	8	2.3	9.0	0.0	0.0
July.....	77	90	112	64	46	85	74	3.3	6	0.9	3.2	0.0	0.0
August.....	74	88	106	61	40	81	71	4.0	6	0.3	10.6	0.0	0.0
Summer mean.....	74	87		62				11.5	20	3.5	22.8	0.0	
September.....	67	80	103	54	26	74	61	4.5	7	2.5	7.3	0.0	0.0
October.....	56	68	96	43	30	62	50	2.1	4	0.9	4.1	T.	2.5
November.....	38	40	76	28	- 2	47	36	1.7	4	0.8	1.2	1.7	4.0
Fall mean.....	54	66		42				8.3	15	4.2	12.6	1.7	
Annual mean.....	51	62	112	40	-23			33.3	68	14.0	55.5	22.0	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 12-15, 20, 21, 27-30; July 1, 9-12, 15-19, 22-30; Aug. 1, 6-11, 13, 14, 16, 17, 23, 28, 29, 31; Sept. 1, 29.	1898	Feb. 1.....	July 19, 24, 27; Aug. 23.
1895	Jan. 12, 27, 28, 30; Feb. 1-5, 7-9, 11.	July 5, 7, 14, 16; Aug. 9, 11-17, 27; Sept. 10, 11, 14, 17.	1899	Jan. 29-31; Feb. 8-13..	July 12, 26; Aug. 2, 3, 11, 27; Sept. 2, 5-7.
1896	None.....	June 30; July 12-14, 29, 30; Aug. 4, 5, 8-11; Sept. 2.	1900	None.....	July 3, 14, 31; Aug. 1-12, 17-21, 23; Sept. 5.
1897	Jan. 24-26.....	June 13, 14, 17, 18; July 8, 9, 23, 30, 31; Aug. 1-3, 28; Sept. 2-14, 26, 30; Oct. 1, 4.	1901	Feb. 10; Dec. 14, 15, 18-20.	June 24-28, 30; July 1-4, 6, 9-26; Aug. 2, 7, 13-15, 25, 28; Sept. 6, 7.
			1902	Jan. 27, 28; Feb. 3, 5...	None.
			1903	Feb. 17, 18.....	July 8-10, 26, 27; Aug. 4, 22, 23, 30.

IOWA.

Southeastern District: LEE COUNTY. Station: KEOKUK.

F. Z. GOSEWICH, Observer.

[Established by the Signal Service July 15, 1871. Latitude, 40° 22' N. Longitude, 91° 26' W. Elevation, 574 feet.]

The station at Keokuk was opened in the fourth story of the State National Bank, on the south corner of Second and Main streets. It was moved to its present location in the United States Government building, east corner of Seventh and Blondeau streets, on September 29, 1889. The thermometers are exposed in a standard roof shelter, the bottom of which is 10 feet above the roof platform. The wind vane and anemometer are exposed on supports erected on a platform on the deck roof of the building—wind vane 77 feet and anemometer 71½ feet above the ground. The rain gage is exposed on the deck roof and is 56 feet above the ground.

The humidity data are from fifteen years' record; all other tabulated data from the full period of observation, July 15 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	30	37	69	22	-22	45	19	1.8	8	1.4	1.4	2.8	5.4	75	1.53	75	1.45	NW.
January.....	24	34	69	16	-26	41	14	1.8	8	0.5	4.1	2.8	10.2	76	1.08	72	1.02	NW.
February.....	28	37	70	19	-22	40	17	1.6	7	0.5	1.2	5.8	12.0	74	1.31	70	1.24	NW.
Winter mean.....	27	36	.....	19	.....	.....	.....	5.2	23	2.4	6.7	11.4	.....	76	1.31	72	1.24	NW.
March.....	38	46	80	30	-6	50	31	2.4	10	1.7	6.0	3.6	7.5	73	1.93	64	1.69	NW.
April.....	52	62	89	43	14	60	44	3.2	10	1.6	4.8	0.4	2.3	70	3.06	58	2.53	SE.
May.....	63	72	92	54	29	70	57	4.2	11	2.3	6.7	T.	T.	71	4.89	59	3.75	S.
Spring mean.....	51	60	.....	42	.....	.....	.....	9.8	31	5.6	17.5	4.0	.....	71	3.29	60	2.66	NW.
June.....	72	81	100	63	43	78	67	4.4	11	2.6	4.8	0.0	0.0	73	6.21	61	5.62	S.
July.....	77	86	108	68	50	85	71	4.2	9	2.0	3.1	0.0	0.0	70	6.97	56	5.58	S.
August.....	75	85	102	65	47	82	70	3.0	7	4.6	6.9	0.0	0.0	78	7.07	61	5.53	S.
Summer mean.....	75	84	.....	65	.....	.....	.....	11.6	27	9.2	14.8	0.0	.....	74	6.75	59	5.58	S.
September.....	67	77	99	58	30	74	62	3.8	8	1.1	8.1	0.0	0.0	80	5.61	64	4.48	S.
October.....	55	65	92	45	20	62	49	2.7	8	0.3	4.0	0.2	3.0	79	3.70	62	2.90	NW.
November.....	39	48	79	32	-3	49	31	2.0	8	3.9	1.5	1.0	4.4	80	2.20	69	1.62	NW.
Fall mean.....	54	63	.....	45	.....	.....	.....	8.5	24	5.3	13.6	1.2	.....	80	3.84	65	3.00	NW.
Annual mean.....	52	61	108	43	-26	.....	.....	35.1	105	22.5	52.6	16.6	12.0	75	3.80	64	3.12	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year	Minimum below -10°.	Maximum 95° or above.	Year	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 15, 20, 21, 29; July 1, 12, 17, 24, 26, 28; Aug. 1, 7-10, 14, 29; Sept. 1, July 16.	1898	None.....	July 24; Aug. 23.
1895	Jan. 27, 30; Feb. 1, 2, 4, 5, 7, 8.	July 16.	1899	Jan. 29; Feb. 8, 9, 11-13	July 26; Aug. 3, 4; Sept. 4-7.
1896	None.....	July 30; Aug. 4, 5, 7, 8.	1900	None.....	Aug. 2-7, 9, 10, 12, 17-21.
1897	Jan. 24-26.....	June 17, 18; July 8, 9, 23, 30, 31; Aug. 2, 28; Sept. 2, 9, 10, 12, 13.	1901	Dec. 14, 19, 20.....	June 24-28, 30; July 1, 2, 4, 9-16, 18-26; Aug. 2, 27; Sept. 7.
			1902	Jan. 27.....	Aug. 2.
			1903	Feb. 17, 18.....	July 8-10; Aug. 4, 23.

MISSOURI.

By A. E. HACKETT,
Section Director.

MISSOURI.

The State of Missouri lies between the thirty-sixth and forty-first parallels of north latitude and the eighty-ninth and ninety-sixth meridians of west longitude. It is 328 miles in extreme length from north to south and contains 69,415 square miles.

Physical features.—The State consists of parts of two distinct types of country, usually designated as the Ozark and Prairie regions, respectively. The line separating these two regions is not sharply defined, but in a general way follows the Missouri River from its mouth to the vicinity of Arrow Rock, in Saline County, and thence runs southward to Sedalia, in Pettis County, thence southwestward through Henry, St. Clair, Cedar, Dade, and Jasper counties to the State line. The Ozark Region lies to the south and east of this line and the Prairie Region to the north and west.

The general shape of the Ozark Region is that of an elliptical dome. The axis of the ellipse extends from the Mississippi River in Ste. Genevieve County southwestward to the State line near the southwest corner of Stone County. Around the foot of the Ozark Region the country has an elevation of about 800 feet above sea level, while the elevation of the top of the dome ranges from 1,400 to 1,700 feet. The streams of the Ozark Region flow northward or northeastward on the northern side and southward or southeastward on the southern side. Many of the streams, particularly in the southwestern part of the State, have cut deep and narrow valleys. The central portion of the Ozark Region is not extremely rugged except in some localities, but along the sides of the dome the valleys are deeper and narrower and the country very broken.

The Prairie Region rises toward the west and northwest and in the extreme northwestern portion of the State reaches an elevation of about 1,200 feet above sea level. The rise is not uniform, but occurs in a series of steps with a slight gradual rise between each step. These steps trend from northeastward to southwestward. In that portion of the region south of the Missouri River there are two of these steps, but north of the river there is only one that is prominent. The rivers of the northern portion of the State flow either into the Missouri or the Mississippi; those flowing into the Missouri have a southerly course, while those flowing into the Mississippi flow southeasterly. The valleys of these streams are wide and the intervening country undulating and rarely too steep for cultivation.

The Prairie Region may be subdivided into three divisions, viz: The Southwestern Lowlands, embracing Johnson, Pettis, Cass, Bates, Henry, Benton, St. Clair, Vernon, and Barton counties; the Northeastern Plain, embracing Lafayette and Saline counties and that portion of the State north of the Missouri River and east of Ray, Caldwell, Grundy, and Mercer counties; and the Northwestern Plateau, which includes all of the northwestern portion of the State. The elevation of the Southwestern Lowlands and of the Northeastern Plain varies from 800 to 1,000 feet, and that of the Northwestern Plateau from 1,000 to over 1,200 feet.

In the extreme southeastern portion of the State, beyond the Ozark Region, there is a small area, embracing Scott, Mississippi, Stoddard, New Madrid, Pemiscot, Dunklin, and the greater part of Butler counties, which lies at an elevation of less than 400 feet and is known as the Southeastern Lowlands. This section of the State is comparatively flat, the larger part of it being an alluvial plain of the Mississippi River.

As will be seen from the foregoing, the topography of the State is not such as to cause any very marked peculiarities of climate. Along the summit and northern slope of the Ozark Region the temperatures are slightly lower than in the Missouri Valley immediately northward, especially during the summer months, and frosts occur somewhat later in spring and earlier in autumn. The average daily range of temperature is also slightly greater in this region than elsewhere.

From its inland location the climate of Missouri is essentially continental.

Temperature.—The annual mean temperature ranges from about 50° in the extreme northwestern to 60° in the extreme southeastern portion of the State, the average for the State being 54°. The mean temperature for July, which is the warmest month, ranges from 75° in the extreme northwest to 80° in the extreme southeast, while the mean temperature for January is 23° in the extreme northwest, about 30° in the central counties, and 36° to 38° in the extreme south. The normal temperature for the State for each month of the year is as follows: January 29.6°, February 30.3°, March 42°, April 55.4°, May 64.6°, June 73.2°, July 77.1°, August 75.7°, September 68.2°, October 57°, November 42.8°, and December 33.1°.

During the winter season cold waves occasionally sweep over the State, causing sudden and decided falls in temperature, but periods of extreme cold are usually of short duration, and while temperatures of 20° to 30° below zero have been recorded they are of rare occurrence, the temperature seldom falling lower than 5° to 10° below zero. The average number of days during the year with minimum temperature below 32° ranges from about 75 in the southern to 110 in the northern portion of the State.

During the months of June, July, August, and September the temperature occasionally reaches 95°, but does not often exceed 100°, the average number of days with maximum temperature above 90° being only twenty for the State. The highest temperature ever recorded in the State was 116°, at Marble Hill, Bollinger County, on July 22, 1901, and the lowest 33° below zero, at Sedalia, Pettis County, and Louisiana, Pike County, on January 5, 1884.

Frost.—The average date of the last killing frost in spring ranges from about April 1 in the extreme southeastern portion of the State to April 25 in the extreme northern portion. The average date of the first killing frost in autumn is October 6 in the extreme northern counties, October 14 in the central portion of the State, and October 27 in the extreme southeast.

Precipitation.—The average annual precipitation for Missouri, as computed from the records for the ten years from 1893 to 1902, inclusive, ranges from 34 inches in the extreme northwestern and extreme northeastern counties to 46 inches in the extreme southeastern and 47 inches in the extreme southwestern counties, the average for the State being 39 inches. During the past twenty-one years there have been but three years when the average precipitation for the State exceeded the normal by 5 inches or more, and only four years in which it was 5 inches or more below the normal. The wettest year during that period was that of 1898, with an average for the State of 53.7 inches, and the driest that of 1901, with an average of 25.3

inches—the driest year of which there is any record. The greatest local annual precipitation on record was 80.1 inches, at Sublett, Adair County, in 1898, and the least, 15.7 inches, at Miami, Saline County, in 1860.

The distribution of precipitation throughout the year is highly favorable to the farmer, the average for the several seasons being as follows: Spring 12 inches, summer 12.1 inches, autumn 8.5 inches, and winter 6.5 inches. The wettest months are May and June, the average for the former being 4.9 inches and for the latter 4.8 inches, and the driest are December, January, and February, with 2.2, 2, and 2.2 inches, respectively.

The precipitation for the crop season (March to September, inclusive) is on the average greatest in the southwestern counties, where it ranges from 28 to 33 inches, and lightest in the extreme eastern counties, where it is from 24 to 26 inches. The average crop-season precipitation for the State is 27.6 inches.

From November to March, inclusive, the precipitation is usually general in character, but during the summer months the greater portion occurs in local showers. Rainfalls of from 2 to 3 inches in twenty-four consecutive hours occur in some portion of the State nearly every month, but falls of more than 4 inches in twenty-four hours are comparatively rare. Falls of over 8 inches in twenty-four consecutive hours have, however, occurred in a few localities.

The average number of rainy days (days with 0.01 of an inch or more of precipitation) for each month is as follows: January and February 9 each, March and April 11 each, May 12, June 11, July 9, August and September 8 each, October 7, November 8, and December 10.

Thunderstorms.—Thunderstorms are liable to occur during any month of the year, but are most frequent during the months of May, June, July, and August, when they occur in some portion of the State on an average of five days out of six. For the remainder of the year the average number of days with thunderstorms ranges from 4 in January to 19 in April. Many destructive wind and hail storms occur during the summer months, but are usually confined to very limited areas. It is probable that for any given locality a destructive storm does not occur on an average oftener than once in ten to fifteen years.

Snow.—The average seasonal snowfall ranges from about 8 inches in the southeastern portion of the State to 30 inches in the extreme northwestern portion. Snow rarely falls earlier than November 1 nor later than April 15. The greatest local seasonal snowfall on record was 73.6 inches, at Oregon, Holt County, in 1898–99, and the greatest monthly fall, 46 inches, at Bethany, Harrison County, in January, 1898.

Winds.—The prevailing winds are southerly, although during the winter season northwesterly winds prevail a considerable part of the time. The average hourly wind velocity ranges from 5 to 10 miles during the summer and from 8 to 12 miles during the winter months.

Cloudiness.—The average cloudiness ranges from 35 to 50 per cent during summer and autumn and from 50 to 55 per cent during winter and spring.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adair.....	Sublett.....	Northeastern Plain.	664	Dunklin (see Poplar Bluff).	.....	Southeastern Lowlands.	.....
Andrew (see Oregon).....	.....	Northwestern Plateau.	.....	Franklin.....	Oakfield.....	Ozark Plateau.	672
Atchison (see Oregon).....	.....	do.	.....	Gasconade (see Oakfield).	.....	do.	.....
Audrain.....	Mexico.....	Northeastern Plain.	669	Gentry (see Oregon).....	.....	Northwestern Plateau.	.....
Barry (see Springfield).....	.....	Ozark Plateau.	.....	Greene.....	Springfield.....	Ozark Plateau.	675
Barton.....	Lamar.....	Southwestern Lowlands.	673	Grundy (see Sublett).....	.....	Northwestern Plateau.	.....
Bates (see Harrisonville).	.....	do.	.....	Harrison (see Oregon).....	.....	do.	.....
Benton (see Harrisonville).	.....	Ozark Plateau.	.....	Henry (see Harrisonville).	.....	Southwestern Lowlands.	.....
Bollinger (see Iron-ton).	.....	do.	.....	Hickory (see Springfield).	.....	Ozark Plateau.	.....
Boone.....	Columbia.....	Northeastern Plain.	668	Holt.....	Oregon.....	Northwestern Plateau.	663
Buchanan (see Kansas City).	.....	Northwestern Plateau.	.....	Howard (see Columbia).	.....	Northeastern Plain.	.....
Butler.....	Poplar Bluff.....	Southeastern Lowlands.	677	Howell.....	Olden.....	Ozark Plateau.	676
Caldwell (see Kansas City).	.....	Northwestern Plateau.	.....	Iron.....	Iron-ton.....	do.	674
Callaway (see Columbia).....	.....	Northeastern Plain.	.....	Jackson.....	Kansas City.....	Northwestern Plateau.	666
Camden (see Springfield).....	.....	Ozark Plateau.	.....	Jasper (see Lamar).....	.....	Ozark Plateau.	.....
Cape Girardeau (see Iron-ton).	.....	do.	.....	Jefferson (see Oakfield).	.....	do.	.....
Carroll (see Brunswick).....	.....	Northeastern Plain.	.....	Johnson (see Harrisonville).	.....	Southwestern Lowlands.	.....
Carter (see Poplar Bluff).....	.....	Ozark Plateau.	.....	Knox (see Sublett).....	.....	Northeastern Plain.	.....
Cass.....	Harrisonville.....	Southwestern Lowlands.	670	Laclede (see Springfield).	.....	Ozark Plateau.	.....
Cedar (see Lamar).....	.....	do.	.....	Lafayette (see Kansas City).	.....	Northeastern Plain.	.....
Chariton.....	Brunswick.....	Northeastern Plain.	665	Lawrence (see Springfield).	.....	Ozark Plateau.	.....
Christian (see Springfield).	.....	Ozark Plateau.	.....	Lewis (see Keokuk, Iowa).	.....	Northeastern Plain.	.....
Clark (see Keokuk, Iowa).	.....	Northeastern Plain.	.....	Lincoln (see Mexico).....	.....	do.	.....
Clay (see Kansas City).....	.....	Northwestern Plateau.	.....	Linn (see Brunswick).....	.....	do.	.....
Clinton (see Kansas City).	.....	do.	.....	Livingston (see Brunswick).	.....	do.	.....
Cole (see Columbia).....	.....	Ozark Plateau.	.....	McDonald (see Lamar).....	.....	Ozark Plateau.	.....
Cooper (see Columbia).....	.....	do.	.....	Macon (see Sublett).....	.....	Northeastern Plain.	.....
Crawford (see Iron-ton).....	.....	do.	.....	Madison (see Iron-ton).....	.....	Ozark Plateau.	.....
Dade (see Springfield).....	.....	do.	.....	Maries (see Columbia).....	.....	do.	.....
Dallas (see Springfield).....	.....	do.	.....	Marion (see Keokuk, Iowa).	.....	Northeastern Plain.	.....
Davies (see Oregon).....	.....	Northwestern Plateau.	.....	Meroer (see Sublett).....	.....	Northwestern Plateau.	.....
Dekalb (see Oregon).....	.....	do.	.....	Miller (see Columbia).....	.....	Ozark Plateau.	.....
Dent (see Iron-ton).....	.....	Ozark Plateau.	.....	Mississippi (see Sikeston; also Cairo, Ill.).	.....	Southeastern Lowlands.	.....
Douglas (see Olden).....	.....	do.	.....	Moniteau (see Columbia).....	.....	Ozark Plateau.	.....

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Monroe (<i>see Mexico</i>)		Northeastern Plain.		St. Clair (<i>see Lamar</i>)		Southwestern Lowlands.	
Montgomery (<i>see Mexico</i>)		do.		St. Genevieve (<i>see Iron-</i>		Ozark Plateau.	
Morgan (<i>see Columbia</i>)		Ozark Plateau.		ton).		do.	
New Madrid (<i>see Sikeston</i>)		Southeastern Lowlands.		St. Francois (<i>see Iron-</i>	St. Louis	do.	671
Newton (<i>see Lamar</i>)		Ozark Plateau.		Saline.	Marshall	Northeastern Plain.	667
Nodaway (<i>see Oregon</i>)		Northwestern Plateau.		Schuyler (<i>see Sublett</i>)		do.	
Oregon (<i>see Olden</i>)		Ozark Plateau.		Scotland (<i>see Keokuk</i> ,		do.	
Osage (<i>see Columbia</i>)		do.		Iowa).	Sikeston	Southeastern Lowlands.	678
Ozark (<i>see Olden</i>)		do.		Scott.		Ozark Plateau.	
Pemiscot (<i>see Poplar</i>		Southeastern Lowlands.		Shannon (<i>see Olden</i>)		Northeastern Plain.	
Bluff).		Ozark Plateau.		Shelby (<i>see Hannibal</i>)		Southeastern Lowlands.	
Perry (<i>see Iron-ton</i>)		Southeastern Lowlands.		Stoddard (<i>see Sikeston</i>)		Ozark Plateau.	
Pettis (<i>see Marshall</i>)		Ozark Plateau.		Stone (<i>see Springfield</i>)		Northeastern Plain.	
Phelps (<i>see Iron-ton</i>)		Northeastern Plain.		Sullivan (<i>see Sublett</i>)		Ozark Plateau.	
Pike (<i>see Hannibal</i>)		Northwestern Plateau.		Taney (<i>see Springfield</i>)		do.	
Platte (<i>see Kansas City</i>)		Ozark Plateau.		Texas (<i>see Olden</i>)		Southwestern Lowlands.	
Polk (<i>see Springfield</i>)		do.		Vernon (<i>see Lamar</i>)		Northeastern Plain.	
Pulaski (<i>see Springfield</i>)		Northeastern Plain.		Warren (<i>see Oakfield</i>)		Ozark Plateau.	
Putnam (<i>see Sublett</i>)		do.		Washington (<i>see Iron-ton</i>)		do.	
Ralls (<i>see Hannibal</i>)		Northwestern Plateau.		Wayne (<i>see Iron-ton</i>)		do.	
Randolph (<i>see Columbia</i>)		Ozark Plateau.		Webster (<i>see Springfield</i>)		Northwestern Plateau.	
Ray (<i>see Kansas City</i>)		do.		Worth (<i>see Oregon</i>)		Ozark Plateau.	
Reynolds (<i>see Iron-ton</i>)		Northeastern Plain.		Wright (<i>see Springfield</i>)			
Ripley (<i>see Poplar Bluff</i>)							
St. Charles (<i>see Oakfield</i>)							

STATE SUMMARY.

Station.	No.	Temperature.						Average number days with—		
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Oregon	1	52	63	43	108	August, 1860	-30	January, 1857	27	113
Sublett	2	51	62	41	112	July, 1901	-24	February, 1899	36	123
Brunswick	3	53	61	42	103	do.	-27	do.	22	119
Kansas City	4	54	63	45	106	do.	-22	do.	20	96
Marshall	5	53	64	42	108	do.	-25	do.	38	117
Columbia	6	55	61	43	111	do.	-26	do.	42	86
Mexico	7	54	65	43	112	do.	-28	January, 1884	47	102
Harrisonville	8	54	66	42	112	do.	-28	February, 1899	53	118
St. Louis	9	56	64	48	107	do.	-22	January, 1884	31	78
Oakfield	10	56	66	46	112	do.	-21	February, 1899	42	93
Lamar	11	56	68	45	108	do.	-25	do.	50	95
Iron-ton	12	55	68	42	113	do.	-26	do.	30	95
Springfield	13	56	65	46	106	do.	-29	do.	19	84
Olden	14	56	68	45	106	do.	-29	do.	33	90
Poplar Bluff	15	58	71	46	112	do.	-25	do.	60	82
Sikeston	16	58	69	47	111	do.	-23	do.	50	79

Station.	No.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.	Inches.	Inches.	Inches.	Inches.	Inches.
Oregon	1	Oct. 10	Apr. 26	Sept. 13	May 20	36.8	10.5	13.6	7.7	5.0
Sublett	2	Oct. 4	May 2	do.	May 31	43.7	15.1	12.1	10.2	6.3
Brunswick	3	Oct. 20	Apr. 13	Sept. 29	May 1	38.2	10.4	14.2	8.7	5.2
Kansas City	4	Oct. 24	Apr. 7	Sept. 30	Apr. 23	36.4	10.6	13.4	7.9	4.5
Marshall	5	Oct. 10	Apr. 14	Sept. 13	May 1	36.8	11.3	12.3	7.6	5.6
Columbia	6	Oct. 14	do.	Sept. 28	May 6	38.1	11.8	12.3	7.7	6.2
Mexico	7	Oct. 13	Apr. 19	Sept. 13	May 21	38.2	10.8	12.2	8.5	6.7
Harrisonville	8	Oct. 18	Apr. 13	Sept. 29	May 1	37.5	10.8	12.5	8.7	5.5
St. Louis	9	Oct. 29	Apr. 4	Sept. 30	May 22	37.1	11.1	10.6	8.0	7.4
Oakfield	10	Oct. 25	Apr. 15	do.	May 14	40.0	13.8	11.6	7.9	6.7
Lamar	11	Oct. 18	Apr. 14	Sept. 15	May 6	41.1	12.6	12.8	9.5	6.5
Iron-ton	12	Oct. 1	Apr. 25	Sept. 13	May 23	45.3	13.2	12.7	9.9	9.6
Springfield	13	Oct. 18	Apr. 16	Sept. 30	May 19	43.6	13.6	12.9	9.5	7.2
Olden	14	Oct. 20	Apr. 12	Sept. 18	May 1	41.4	14.2	10.0	9.0	8.6
Poplar Bluff	15	Oct. 17	Apr. 13	Sept. 29	May 19	46.7	14.5	12.2	9.3	10.3
Sikeston	16	Oct. 19	Apr. 7	Sept. 30	May 1	45.2	13.7	10.0	10.2	11.3

MISSOURI.

Northwestern Plateau: HOLT COUNTY. Station: OREGON.

G. C. KAUCHER, Observer.

[Established November, 1855, by Mr. Wm. Kaucher. Latitude, 39° 59' N. Longitude, 95° 0' W. Elevation, 1,113 feet.]

The station is located on the western slope near the southeastern limits of the city of Oregon. To the north and east the country is rolling, and to the south and west broken and hilly.

The station is equipped with barometer, wet and dry bulb, and maximum and minimum thermometers, and rain gage, all of standard pattern. Prior to April 1, 1898, the thermometers were exposed under a west porch of Mr. Kaucher's house, which was shaded by large maple trees; since that date they have been exposed in a cotton-region instrument shelter located at the northeast corner of an open shed 17 feet east of the house, and 4 feet above ground. The rain gage is on the ground with low buildings 22 feet distant on the south and 15 feet on the west, and fruit trees about 25 feet distant on the east.

Mean of maximum and mean of minimum temperatures, snowfall, and wind data are for a period of eleven years; number of days with 0.01 or more precipitation, twenty years. The remaining data are for the period of observation November 1, 1855, to December 31, 1903, forty-eight years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	38	75	21	-24	43	18	1.6	9	1.2	2.4	5.7	8.0	S.
January.....	23	36	70	18	-30	36	8	1.6	10	1.2	1.4	7.1	8.5	S.
February.....	28	35	79	16	-26	39	16	1.8	10	2.2	0.4	8.8	12.0	N.W.
Winter mean.....	26	36		18				5.0	29	4.7	4.2	21.6		S.
March.....	38	50	91	30	-12	49	30	2.1	12	2.0	0.9	5.3	14.0	S.
April.....	53	67	94	44	8	62	38	3.4	12	1.3	1.3	0.8	3.0	N.
May.....	64	75	98	55	26	70	56	5.0	14	2.4	6.4	0.0	0.0	S.
Spring mean.....	52	64		43				10.5	38	5.7	8.6	6.1		S.
June.....	72	82	106	63	41	76	67	4.7	11	4.8	7.5	0.0	0.0	S.
July.....	75	87	107	67	47	86	71	4.6	10	0.5	10.8	0.0	0.0	S.
August.....	75	86	108	65	37	82	69	4.3	10	0.0	4.4	0.0	0.0	S.
Summer mean.....	74	85		65				13.6	31	5.3	22.7	0.0		S.
September.....	67	79	104	58	25	76	62	3.3	9	3.6	7.7	0.0	0.0	S.
October.....	55	69	93	47	8	62	45	2.7	7	2.2	4.7	1.1	8.0	S.
November.....	40	50	82	31	-10	49	29	1.7	8	0.7	2.8	1.6	6.0	S.
Fall mean.....	54	66		45				7.7	24	6.5	15.2	2.7		S.
Annual mean.....	52	63	108	43	-30			36.8	122	22.2	50.7	30.4	14.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-25; Feb. 15; Dec. 27, 28.	July 26; Aug. 11, 13, 17.	1900	Jan. 28, 31; Feb. 8, 9, 15-17; Dec. 31.	None.
1895	Jan. 8, 11-13, 26, 27, 30; Feb. 1-8.	None.	1901	Jan. 1; Feb. 5, 10; Dec. 13-15, 18-20.	June 28, 29; July 4, 9-16, 18-26.
1896	Jan. 3, 4; Nov. 30.....	Do.	1902	Jan. 26, 27; Feb. 2-5, 9; Dec. 26, 27.	None.
1897	Jan. 24-29; Feb. 26; Mar. 14; Dec. 16, 18.	July 31; Aug. 1.	1903	Jan. 12; Feb. 16-19; Dec. 12, 13.	Do.
1898	Nov. 23; Dec. 8, 9, 13, 31.	None.			
1899	Jan. 28-31; Feb. 2, 4, 5, 7-13, 23, 27; Dec. 30.	Do.			

MISSOURI.

Northeastern Plain: ADAIR COUNTY. Station: SUBLETT.

LEWIS SPRIGGS, Observer.

[Established by the Weather Bureau, January, 1893. Latitude, 40° 18' N. Longitude, 92° 34' W. Elevation, 1,000 feet.]

The station is located in the open country, two miles south of the village of Sublett. In the immediate vicinity of the station the ground slopes gently to the southward; the surrounding country is a high, gently rolling prairie.

The maximum and minimum thermometers are exposed in a cotton-region instrument shelter, located over sod about 30 feet southwest of the observer's house. The thermometers are 4½ feet above ground. The rain gage is on the ground, about 15 feet east of the shelter, and about 30 feet from the house. Prior to January, 1898, the thermometers were exposed on the north wall of the house, 5 feet above ground.

The temperature record for 1893 is from eye readings of an exposed thermometer at 7 a. m., 2, and 9 p. m., but since February, 1894, the monthly means have been computed from the daily readings of the maximum and minimum. The two series have been combined in a general mean.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	36	64	20	-19	35	21	2.2	5	(a)	2.7	4.5	5.0	SW.
January.....	26	35	64	18	-17	30	18	1.8	4	0.7	2.7	6.3	11.5	NW.
February.....	23	32	67	14	-24	30	16	2.3	5	2.1	1.6	10.2	11.0	NW.
Winter mean.....	26	34	.....	17	.....	.....	.....	6.3	14	(?)	7.0	21.3	.....	NW.
March.....	38	48	85	28	-1	45	31	4.1	6	3.4	11.3	2.5	10.0	SW.
April.....	53	64	89	42	3	59	50	4.6	6	2.6	6.6	1.0	6.0	SW.
May.....	63	75	93	52	27	68	60	6.4	9	0.3	19.2	0.0	0.0	SW.
Spring mean.....	51	62	.....	41	.....	.....	.....	15.1	21	6.3	37.1	3.5	.....	SW.
June.....	72	84	102	60	37	76	55	4.3	8	3.2	3.1	0.0	0.0	SW.
July.....	77	89	112	64	47	85	72	4.3	6	0.8	4.0	0.0	0.0	SW.
August.....	74	87	101	62	41	81	71	3.5	5	0.5	4.3	0.0	0.0	SW.
Summer mean.....	74	87	.....	62	.....	.....	.....	12.1	19	4.5	11.4	0.0	.....	SW.
September.....	66	78	98	54	25	74	60	5.5	7	2.6	14.7	0.0	0.0	SW.
October.....	56	68	92	44	16	61	48	2.8	4	1.3	6.2	T.	T.	SW.
November.....	39	49	78	29	-2	49	36	1.9	4	(a)	3.6	1.5	5.0	NW.
Fall mean.....	54	65	.....	42	.....	.....	.....	10.2	15	(?)	24.5	1.5	.....	SW.
Annual mean.....	51	62	112	41	-24	.....	.....	43.7	69	(?)	80.0	26.3	11.5	SW.

^a No record for November or December, although unquestionably the driest year.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Dec. 28 (January missing).	July 24-27; Aug. 9.	1900	Jan. 28, 31; Feb. 1, 9, 15-17, 24, 25; Mar. 1, 3, 16, 17; Dec. 31.	None.
1895	Jan. 8, 9, 12, 24, 27, 28, 30; Feb. 1-11, 15, 16; Dec. 5.	None.	1901	Jan. 1, 2; Feb. 5, 10, 12; Dec. 14, 15, 17-20.	June 29, 30; July 1-5, 9, 11-25; Aug. 8.
1896	Jan. 3, 4, 26; Feb. 17, 20; Nov. 30.	Do.	1902	Jan. 26-28; Feb. 2-5, 7-9, 15 (November and December missing).	None.
1897	Jan. 24-29; Feb. 26; Mar. 14; Dec. 16, 18, 19, 21, 24.	June 17, 18; July 8, 23; Aug. 1, 3.	1903	Jan. 11, 12; Feb. 16, 17; Dec. 13, 26.	Do.
1898	Jan. 16; Feb. 1-3; Nov. 26; Dec. 4, 7, 8, 12, 13, 29, 30.	None.			
1899	Jan. 27, 29-31; Feb. 1, 4-13; Mar. 7; Dec. 5, 15, 26, 30, 31.	Do.			

MISSOURI.

Northeastern Plain: CHARITON COUNTY. Station: BRUNSWICK.

LOUIS BENECKE, Observer.

Established as a special river station of the Signal Service in May, 1873; discontinued in December, 1885; reestablished as a voluntary observation station of the Signal Service in October, 1889. Latitude, 39° 26' N. Longitude, 93° 08' W. Elevation, 652 feet.

This station is located in the eastern portion of the city of Brunswick, at the foot of the bluffs on the northern side of the Missouri River. Immediately north of the station the bluffs rise to a height of about 185 feet, and on the south is the flood plain of the Missouri River, which at this point is about 4 miles in width from bluff to bluff. From the reestablishment of the station in 1889 until October, 1896, the thermometers were exposed under the north porch of Mr. Benecke's house. Since that date they have been exposed in a cotton-region instrument shelter located on the lawn, 20 feet east of the house and 4 feet above ground. From 1889 to 1902 the rain gage was exposed on the ground, 22 feet southeast of the house, 28 feet east of a small summer kitchen, and 13 feet west of a small one-story building, but in October, 1902, it was removed to a more open exposure in the garden, where the nearest obstruction, a small one-story building, is 38 feet distant.

All temperature records at this station are from maximum and minimum thermometers, and the monthly means have been computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	32	39	68	21	-22	45	25	1.7	5	1.9	0.8	2.9	6.5
January.....	28	38	70	19	-21	33	22	1.6	4	1.5	4.0	4.9	10.0
February.....	27	36	70	15	-27	38	17	1.9	5	1.3	2.0	8.6	16.0
Winter mean.....	29	38		18				5.2	14	4.7	6.8	16.4	
March.....	40	52	84	29	- 1	47	32	2.4	7	3.7	5.9	1.3	3.0
April.....	55	67	97	43	15	63	51	3.0	8	2.0	3.1	0.8	6.0
May.....	64	76	92	54	31	69	59	5.0	10	1.2	11.9	0.0	0.0
Spring mean.....	53	65		42				10.4	25	6.9	20.9	2.1	
June.....	73	83	99	63	37	77	68	5.6	9	1.4	9.9	0.0	0.0
July.....	77	87	103	68	50	84	72	4.5	7	1.8	3.1	0.0	0.0
August.....	75	86	99	65	47	79	72	4.1	7	1.2	5.2	0.0	0.0
Summer mean.....	75	85		65				14.2	23	4.4	18.2	0.0	
September.....	68	79	95	57	32	73	62	3.8	7	2.0	5.3	0.0	0.0
October.....	57	70	93	45	18	61	52	2.9	5	1.2	6.6	0.1	1.5
November.....	41	52	77	31	3	48	37	2.0	5	0.4	2.6	0.4	1.5
Fall mean.....	55	67		44				8.7	17	3.6	14.5	0.5	
Annual mean.....	53	64	103	42	-27			38.2	79	19.6	60.4	19.0	16.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 15, 16, 24; Dec. 27, 28.	None.	1900	Jan. 19, 31; Feb. 1, 9, 10, 15-17, 25, 26.	None.
1895	Jan. 8, 11-13, 26, 28-30; Feb. 3-11.	Do.	1901	Jan. 1, 2; Feb. 4-7, 10, 11; Dec. 14-21.	July 3, 4, 9, 10, 12, 16, 20-24.
1896	Jan. 4, 8.	Do.	1902	Jan. 27, 28; Feb. 2-10, 16; Dec. 26, 27.	None.
1897	Jan. 24-30.	Do.	1903	Jan. 12, 13; Feb. 16-20; Dec. 13, 14.	Do.
1898	Feb. 1; Dec. 9, 10, 14.	Do.			
1899	Jan. 29-31; Feb. 1, 4, 7, 9-14; Mar. 8; Dec. 15, 16, 30, 31.	Do.			

MISSOURI.

Northwestern Plateau: JACKSON COUNTY. Station: KANSAS CITY.

PATRICK CONNOR, Local Forecaster.

[Established by Signal Service July 1, 1888. Latitude, 39° 5' N. Longitude, 94° 37' W. Elevation, 909 feet.]

This city is situated at the junction of the Missouri and Kansas rivers. Along each river is considerable bottom land, and each river has its bluffs, so that at this place there is a basin or depression from 200 to 300 feet below the level of the bluffs; otherwise this locality is quite free from topographical abnormalities.

The station was established in the old Government building, now the Fidelity Building, southeast corner Walnut and Ninth streets, July 1, 1888, and was transferred to its present quarters in the Rialto Building, southwest corner Grand avenue and Ninth street, May 1, 1890.

The instruments are exposed in a standard shelter on a large flat roof of a five-story building near the business center, and on the highest level in the business district. The ground at the base of office building is about 179 feet above the zero of the river gage. The instruments have a free and unobstructed exposure.

Tabulated data are from the following periods of observation: Precipitation data, fifteen years; snow, twelve years; humidity, fifteen years; sunshine, thirteen years. Remainder of data is from the full period of observation, July 1, 1888 to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	34	42	70	26	-13	46	27	1.4	7	1.7	1.4	4.7	7.2	78	1.55	70	1.78	146	49	NW.
January.....	30	38	69	22	-17	35	22	1.3	7	0.4	4.1	5.6	6.8	78	1.27	71	1.56	152	50	NW.
February.....	29	37	76	21	-22	37	19	1.8	8	1.4	1.1	8.0	11.8	80	1.30	72	1.58	143	48	NW.
Winter mean.....	31	39	.....	23	.....	.....	.....	4.5	22	3.5	6.6	18.3	.....	79	1.37	71	1.64	147	49	NW.
March.....	41	51	88	32	2	48	34	2.5	10	3.7	4.5	4.1	6.3	78	1.78	64	2.19	192	52	NW.
April.....	56	65	90	46	22	61	52	3.0	11	4.2	3.8	1.0	4.7	75	2.95	57	3.17	204	52	SE.
May.....	65	74	90	56	36	70	60	5.1	13	0.8	7.7	0.0	0.0	77	4.28	60	4.64	232	52	SE.
Spring mean.....	54	63	.....	45	.....	.....	.....	10.6	34	8.7	16.0	5.1	.....	77	3.00	60	3.33	209	52	SE.
June.....	74	83	100	64	48	79	69	4.4	11	2.5	6.0	0.0	0.0	80	5.98	61	6.27	261	58	SE.
July.....	78	87	106	69	54	87	72	5.0	9	2.8	4.9	0.0	0.0	78	6.64	59	7.07	291	64	S.
August.....	76	86	103	67	46	80	73	4.0	8	2.6	5.0	0.0	0.0	80	6.18	59	6.45	279	66	SE.
Summer mean.....	76	85	.....	67	.....	.....	.....	13.4	28	7.9	15.9	0.0	.....	79	6.27	60	6.60	277	63	SE.
September.....	69	79	101	59	35	77	63	3.9	8	1.8	4.5	0.0	0.0	78	4.63	61	5.36	252	68	SE.
October.....	58	68	91	48	26	64	53	2.3	6	2.2	4.4	0.4	3.3	76	3.10	55	3.38	236	68	SE.
November.....	43	51	79	34	4	50	39	1.7	6	0.6	2.7	1.3	3.7	75	1.98	64	2.18	156	52	NW.
Fall mean.....	57	66	.....	47	.....	.....	.....	7.9	20	4.6	11.6	1.7	.....	76	3.24	60	3.64	215	63	SE.
Annual mean.....	54	63	106	45	-22	.....	.....	36.4	104	24.7	50.1	25.1	11.8	78	3.47	63	3.80	212	57	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 23-25; Dec. 28....	June 30; July 24-26; Aug. 9-14.	1900	Feb. 16, 17.....	June 6; Aug. 17, 20, 21.
1895	Jan. 11, 12, 26, 27; Feb. 1-8.	July 16; Sept. 17.	1901	Dec. 14, 15, 18-20.....	June 9, 10, 22-30; July 1-4, 6, 8-25; Aug. 1, 2, 25, 29.
1896	Jan. 3.....	July 3, 14, 15, 29, 31; Aug. 3-5, 7-11, 15, 21.	1902	Jan. 26, 27; Feb. 2, 4, 5; Dec. 26.	June 11; July 15; Aug. 3, 4, 13, 14, 17.
1897	Jan. 24-27.....	June 17-19, 23; July 7-9, 21-24, 28-31; Aug. 1-3, 26-28; Sept. 1-5, 12.	1903	Jan. 12; Feb. 16-18....	July 9, 10; Aug. 5.
1898	Dec. 9, 14, 31.....	July 19, 27; Aug. 23, 29.			
1899	Jan. 28-31; Feb. 4, 7-13, 23.	Aug. 1, 3, 4, 8, 11, 23; Sept. 4-7.			

MISSOURI.

Northeastern Plain: SALINE COUNTY. Station: MARSHALL.

W. H. BLACK, Observer.

[Established by the Signal Service in September, 1890. Latitude, 39° 7' N. Longitude, 93° 11' W. Elevation, 779 feet.]

The station is located at the Missouri Valley College near the southwestern limits of the city of Marshall and is in the open country. The surrounding country is level or only gently rolling.

Since January, 1898, the maximum and minimum thermometers have been exposed in a cotton-region instrument shelter located about 50 feet east of the observer's house. The shelter is over sod and the thermometers are 5 feet above ground. Prior to January, 1898, the thermometers were exposed on the north side of a tight wooden screen, located at the same point as the shelter and were protected by boards placed above and at the sides.

The rain gage is located in a garden about 40 feet northeast of the shelter and is on the ground. There are small trees and shrubbery on all sides at distances varying from 30 to 100 feet.

The mean temperatures have been computed from daily readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1890, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	31	39	72	22	-22	37	26	1.9	7	2.6	2.2	3.4	5.0	NW.
January.....	28	38	72	19	-16	34	20	1.7	6	1.9	4.0	5.1	7.0	NW.
February.....	28	35	73	17	-25	38	18	2.0	7	1.2	1.8	8.7	15.0	NW.
Winter mean.....	29	37		19				5.6	20	5.7	8.0	17.2		NW.
March.....	41	52	85	30	-5	47	34	3.0	9	4.4	6.4	2.5	4.0	SW.
April.....	55	66	97	43	17	60	52	3.4	9	3.4	3.1	1.0	4.0	SW.
May.....	65	76	94	53	29	71	62	4.9	11	1.1	9.2	0.0	0.0	SW.
Spring mean.....	54	65		42				11.3	29	8.9	18.7	3.5		SW.
June.....	73	85	101	61	41	77	67	4.3	10	2.5	5.3	0.0	0.0	SW.
July.....	77	89	108	65	49	85	73	4.2	7	1.5	2.6	0.0	0.0	SW.
August.....	76	89	106	63	40	80	72	3.8	7	1.7	1.5	0.0	0.0	SW.
Summer mean.....	75	88		63				12.3	24	5.7	9.4	0.0		SW.
September.....	68	81	102	56	28	75	62	3.4	8	1.6	6.4	0.0	0.0	SW.
October.....	57	71	95	44	20	63	51	2.2	6	1.2	5.4	0.2	2.0	SW.
November.....	42	52	79	31	4	49	38	2.0	6	0.7	2.2	0.7	4.0	SW.
Fall mean.....	56	68		44				7.6	20	3.5	14.0	0.9		SW.
Annual mean.....	53	64	108	42	-25			36.8	93	23.8	50.1	21.6	15.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-26; Feb. 15, 16; Dec. 28.	July 25; Aug. 9-14, 16.	1900	Jan. 28, 31; Feb. 1, 9, 16, 17, 25; Dec. 31.	Aug. 22.
1895	Jan. 9, 11-13, 26, 27, 29, 30; Feb. 1-9, 11; Dec. 3.	Sept. 14 (15 days missing from July record).	1901	Jan. 1; Feb. 5, 6, 10, 12; Dec. 14, 15, 17-20.	June 29; July 2-4, 9-13, 15-25; Aug. 25.
1896	Jan. 4.	July 31; Aug. 3-5, 7-9, 15.	1902	Jan. 26, 27; Feb. 2-5, 7, 9; Dec. 26 (13 days missing from Jan. record).	None.
1897	Jan. 24-29; Dec. 18.	June 18, 23; July 8, 9, 30, 31; Aug. 1-3, 26; Sept. 2-5, 12.	1903	Jan. 12; Feb. 16-19; Dec. 13.	Do.
1898	Dec. 9, 13, 14, 31.	None.			
1899	Jan. 28-31; Feb. 1, 4, 7-13, 23; Dec. 15, 29-31.	Sept. 6.			

MISSOURI.

Northeastern Plain: BOONE COUNTY. Station: COLUMBIA.

GEO. REEDER, Section Director.

[Established by the Signal Service in August, 1899. Latitude, 38° 57' N. Longitude, 92° 20' W. Elevation, 739 feet.]

This station is located at the Agricultural College Building of the Missouri State University in the southern portion of the city of Columbia and is practically in the open country. The ground in the immediate vicinity of the station is gently rolling with a general slope to the westward toward a small stream one-fourth mile distant and about 50 feet below the level of the ground at the station.

The thermometers are exposed in a standard Weather Bureau instrument shelter located on the university campus, 95 feet north and 18 feet west of the office building and 11 feet above ground. The rain and snow gages are on the ground 130 feet northwest of the building. The tops of the gages are 3 feet above ground. The gages are surrounded by a 4-foot wire fence forming an inclosure 12 feet square. The wind vane and anemometer are on a combined support on the roof of the office building, the former being 85 and the latter 84 feet above ground. The exposure is unobstructed.

From its establishment until August 1, 1895, the station was located in what was known as the Experiment Station Building on the southwest corner of Hitt street and University avenue. The exposure of the instruments was considered good. The station was removed to its present location on August 1, 1895.

Tabulated data are from the following periods of observation: Sunshine, six years, March, 1898, to December, 1903; remaining data are from the full period of observation, September 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean hu- midity.		Total sun- shine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.					
December.....	34	44	75	24	-23	49	28	1.8	8	2.3	2.3	3.1	4.1	75	1.71	172	58	SW.
January.....	31	41	74	21	-16	36	23	2.2	8	2.3	2.3	5.0	7.5	74	1.62	195	64	NW.
February.....	30	40	76	20	-26	40	20	2.2	9	1.8	6.8	5.2	8.0	74	1.50	187	62	NW.
Winter mean.....	32	42	75	22	-23	41	24	6.2	25	6.4	11.4	13.3	7.4	74	1.61	185	61	NW.
March.....	42	53	85	31	-6	50	37	3.1	11	3.2	3.5	3.5	6.0	70	2.22	226	61	NW.
April.....	56	67	90	44	18	64	52	3.8	12	2.4	5.6	0.7	4.0	64	3.44	265	67	SE.
May.....	65	76	92	53	30	71	61	4.9	14	0.4	10.6	0.0	0.0	70	5.07	300	68	SE.
Spring mean.....	54	65	90	43	18	62	57	11.8	37	6.0	19.7	4.2	0.0	68	3.58	264	65	SE.
June.....	74	85	104	62	42	78	66	4.8	12	1.2	3.6	0.0	0.0	73	7.05	339	76	S.
July.....	77	89	111	65	45	85	72	4.4	9	2.7	7.6	0.0	0.0	70	7.65	365	80	S.
August.....	76	88	105	66	42	81	72	3.1	8	1.7	3.0	0.0	0.0	72	7.17	339	80	SE.
Summer mean.....	76	87	104	64	42	81	72	12.3	29	5.6	14.8	0.0	0.0	72	7.29	348	79	S.
September.....	69	82	104	56	26	76	62	3.4	9	1.4	4.5	0.0	0.0	73	5.46	278	74	SE.
October.....	58	71	95	45	19	64	52	2.1	7	1.2	1.9	0.0	T.	69	3.58	248	72	S.
November.....	43	54	80	32	5	51	40	2.2	8	0.8	2.4	0.6	4.0	71	2.26	193	64	NW.
Fall mean.....	57	69	90	44	18	62	54	7.7	24	3.4	8.8	0.6	0.0	71	3.77	240	70	SE.
Annual mean.....	55	66	90	43	-26	66	54	38.1	115	21.4	54.7	18.1	8.0	71	4.06	259	69	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 15....	July 24-26; Aug. 9-14, 18.	1900	Jan. 31; Feb. 16, 17, 25.	Aug. 21.
1895	Jan. 9, 12, 13, 27, 30; Feb. 1, 2, 4, 5, 7-9, 11; Dec. 3-5.	None.	1901	Jan. 1; Dec. 14, 15, 17-20.	June 22-30; July 1-4, 9-13, 15, 16, 19-25; Aug. 2, 25, 29.
1896	None.	Aug. 7-9, 15.	1902	Jan. 26, 27; Feb. 2-5, 7, 9; Dec. 25.	None.
1897	Jan. 24-29.....	July 31; Aug. 2, 26; Sept. 1-3, 12.	1903	Jan. 12; Feb. 16-19; Dec. 13.	Do.
1898	Dec. 13, 14.....	None.			
1899	Jan. 1, 28-31; Feb. 4, 7-13; Mar. 7; Dec. 15, 30, 31.	Aug. 3; Sept. 4-7.			

MISSOURI.

Northeastern Plain: AUDRAIN COUNTY. Station: MEXICO.

J. F. LLEWELLYN, Observer.

[Established December, 1877. Latitude, 39° 10' N. Longitude, 91° 32' W. Elevation, 797 feet.]

This station is located in the residence portion of the city of Mexico, two blocks north of the public square, and is surrounded by trees and buildings on all sides.

From its establishment until January, 1892, the station was equipped with an exposed thermometer and a rain gage. The thermometer was exposed in a latticed shelter 4 feet above ground, and observations of temperature were made at 7 a. m. and 12 noon. Standard maximum and minimum thermometers were put in use on January 1, 1892, and were exposed in a louvered shelter about 4 feet above ground and 30 feet west of the observer's house. In March, 1902, the station was equipped with a cotton-region instrument shelter, located 40 feet west of the house, over sod, and 4 feet above ground.

Until March, 1902, the rain gage was located on the ground, but during that month it was removed to a more open exposure 40 feet west of the observer's house.

All temperature means have been computed from daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maximum.	Mean of the min-ima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	33	39	70	23	-21	46	27	2.2	9	2.5	2.3	3.2	4.5	NW.
January.....	29	37	72	19	-28	35	20	2.0	8	2.4	1.7	5.9	7.0	NW.
February.....	29	37	71	19	-25	37	20	2.5	9	2.1	5.0	9.3	18.6	NW.
Winter mean.....	30	38		20				6.7	26	7.0	9.0	18.4		NW.
March.....	41	52	87	31	-3	47	36	2.8	10	3.1	2.7	2.8	3.5	NW.
April.....	55	67	91	43	16	62	52	3.3	11	2.2	5.8	1.5	6.0	NW.
May.....	65	77	94	54	28	71	62	4.7	12	0.7	8.8	0.0	0.0	S. NW.
Spring mean.....	54	65		43				10.8	33	6.0	17.3	4.3		NW.
June.....	74	84	105	62	49	79	67	5.5	12	2.1	3.7	0.0	0.0	S.
July.....	78	84	112	64	49	87	72	4.1	9	2.1	9.0	0.0	0.0	SW.
August.....	76	89	105	64	47	82	73	2.6	8	0.6	2.3	0.0	0.0	NW.
Summer mean.....	76	88		64				12.2	29	4.8	15.0	0.0		S.
September.....	69	82	108	56	29	75	63	3.8	8	0.7	3.8	0.0	0.0	S.
October.....	57	70	95	45	20	64	51	2.2	8	1.1	1.4	T.	T.	NW.
November.....	42	52	79	33	1	51	38	2.5	8	0.9	2.6	1.0	2.0	NW.
Fall mean.....	56	68		45				8.5	24	2.7	7.8	1.0		NW.
Annual mean.....	54	65	112	43	-28			38.2	112	20.5	49.1	23.7	18.6	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24-27; Feb. 15, 16; Dec. 28.	June 22; July 24-26, 28; Aug. 9-12, 14.	1900	Jan. 31; Feb. 17, 25...	Aug. 17-21.
1895	Jan. 9, 12, 13, 27, 28, 30, 31; Feb. 1-5, 7-9, 11; Dec. 3.	None.	1901	Jan. 1; Feb. 5; Dec. 14-16, 18-21.	June 23-30; July 1-6, 9-13, 15, 16, 18-25; Aug. 25, 26, 28, 29; Sept. 8.
1896	None.	Aug. 4, 7, 11.	1902	Jan. 27, 28; Feb. 2-5, 7, 9, 10; Dec. 26.	None.
1897	Jan. 24-29.	June 18; July 24; Sept. 1-7, 12.	1903	Jan. 12; Feb. 16-19; Dec. 13, 14.	Do.
1898	Dec. 13, 14.	Aug. 23; Sept. 3.			
1899	Jan. 28, 29, 31; Feb. 1, 4, 7-13; Mar. 7; Dec. 15, 30, 31.	Aug. 3, 4, 28; Sept. 2-7.			

MISSOURI.

Southwestern Lowlands: CASS COUNTY. Station: HARRISONVILLE.

A. J. SHARP, Observer.

[Established June, 1863; discontinued in December, 1870; reestablished in January, 1878. Latitude, 38° 39' N. Longitude, 94° 21' W. Elevation, 912 feet.]

Since 1887 this station has been located on Independence street in the northern portion of the city of Harrisonville.

Since 1896 the maximum and minimum thermometers have been exposed in a cotton region instrument shelter located 8 feet north of the observer's house and 4 feet above ground; prior to that year they were exposed on the north wall of the house, about 3 feet above ground. The rain gage is located on the ground, 25 feet north of the northwest corner of the house.

Tabulated data are included within the period of observation June 1, 1863, to December 31, 1903. The monthly mean temperature and highest and lowest monthly means are for a period of about twenty-six years; mean precipitation for about twenty-nine years, and mean of the maximum and minimum temperatures for about twelve years. The remaining data are for periods of observation varying in length from eleven to sixteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	31	40	74	21	-16	46	24	2.0	6	0.4	1.0	2.8	5.0	SW.
January.....	27	39	70	19	-20	34	19	1.4	5	1.2	0.4	4.8	8.0	SW.
February.....	29	38	81	16	-28	36	16	2.1	6	1.2	3.4	6.2	12.5	NW.
Winter mean.....	29	39	.....	19	.....	.....	.....	5.5	17	2.8	4.8	13.8	.....	SW.
March.....	40	55	92	30	1	49	28	2.6	8	0.9	3.4	3.8	9.0	SW.
April.....	54	68	96	43	15	62	48	3.5	9	2.0	7.4	1.1	5.0	SW.
May.....	64	77	94	54	28	69	58	4.7	12	2.6	4.6	0.0	0.0	SW.
Spring mean.....	56	67	.....	42	.....	.....	.....	10.8	29	5.5	15.4	4.9	.....	SW.
June.....	73	84	104	62	41	80	68	4.4	12	2.2	12.2	0.0	0.0	SW.
July.....	78	89	112	66	52	88	72	3.9	8	3.5	10.7	0.0	0.0	SW.
August.....	75	90	108	64	45	80	68	4.2	8	5.3	6.4	0.0	0.0	SW.
Summer mean.....	75	88	.....	64	.....	.....	.....	12.5	28	1.0	29.3	0.0	.....	SW.
September.....	68	82	107	56	29	76	60	4.0	8	1.3	8.1	0.0	0.0	SW.
October.....	56	71	96	44	21	69	46	2.6	5	2.1	9.7	0.4	2.0	SW.
November.....	42	53	79	31	0	49	36	2.1	5	1.6	0.0	0.5	2.0	SW.
Fall mean.....	55	69	.....	44	.....	.....	.....	8.7	18	5.0	17.8	0.9	.....	SW.
Annual mean.....	54	66	112	42	-28	.....	.....	37.5	92	24.3	67.3	19.6	12.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 23-26; Feb. 14, 15; Dec. 27, 28.	July 24-27; Aug. 9-14, 16, 31.	1900	Jan. 31; Feb. 1, 9, 10, 17, 18.	Aug. 22.
1895	Jan. 8, 11-13, 25-31; Feb. 1-8, 10.	Sept. 12, 13.	1901	Jan. 1, 2; Feb. 6; Dec. 14-21.	June 21-30; July 1-4, 6, 8-25; Aug. 1-3, 25.
1896	Jan. 3.....	Aug. 4, 6, 8-12, 16.	1902	Jan. 27, 28, 30, 31; Feb. 2-10, 15, 16.	Aug. 18.
1897	Jan. 25-30.....	June 19; July 24, 30, 31; Aug. 1-3, 26, 27; Sept. 1-5, 12.	1903	Jan. 12, 13; Feb. 16-19.	None.
1898	Dec. 9, 10, 13-15.	None.			
1899	Jan. 29-31; Feb. 1, 4, 5, 7, 23; Dec. 15, 16.	Sept. 5-8.			

MISSOURI.

Eastern District: ST. LOUIS COUNTY. Station: ST. LOUIS.

E. H. BOWIE, Local Forecaster.

[Established by the Signal Service, October 12, 1870. Latitude, 38° 38' N. Longitude, 90° 12' W. Elevation, 465 feet.]

This station is situated in the Chemical Building, rooms Nos. 1516 to 1521, fifteenth floor. The Chemical Building is located eight blocks west of the Mississippi River at the northeast corner of Eighth and Olive streets. The station is surrounded by the most important business district of the city, but the elevation of the roof, upon which the instruments are exposed, is greater than that of any other building in the city, it being practically 200 feet above the streets immediately below.

The thermometers and the thermograph are exposed in a specially constructed shelter 10.6 feet above the roof and 208.4 feet above the ground.

From October 12, 1870, to July 14, 1871, the office was located at 210 Olive street, sixth floor; from July 15, 1871, to February 28, 1873, at 210 Olive street, second floor; from March 1, 1873, to September 14, 1883, Sixth and Locust streets; from September 15, 1883, to August 15, 1903, dome of United States custom-house; from August 16, 1903, to date, fifteenth floor of the Chemical Building, northeast corner of Eighth and Olive streets; elevation, 632.2 feet.

Tabulated data are from the following periods of observation: All temperature data, thirty-one years; snowfall, twenty years; humidity, sixteen years; sunshine, thirteen years. Remaining data are from the full period of observation, thirty-three years—January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	36	43	74	29	-17	50	25	2.3	10	1.2	1.0	3.2	8.0	77	1.70	69	1.90	143	49	S.
January.....	32	40	74	24	-22	47	22	2.2	9	2.5	4.5	6.6	10.0	79	1.46	68	1.62	161	53	NW.
February.....	34	43	78	26	-16	45	24	2.9	10	2.9	1.7	6.2	6.3	78	1.45	70	1.72	154	51	NW.
Winter mean.....	34	42	.....	26	.....	.....	.....	7.4	29	6.6	7.2	16.0	.....	78	1.54	69	1.75	153	51	NW.
March.....	44	52	85	35	3	54	39	3.3	11	1.3	7.7	3.5	20.0	77	2.03	67	2.36	189	52	NW.
April.....	57	66	91	48	22	65	47	3.4	10	0.5	3.8	0.8	4.0	72	2.95	59	3.41	234	58	SE.
May.....	66	71	94	58	32	73	60	4.4	12	3.2	8.6	0.0	0.0	76	4.66	62	4.79	279	63	S.
Spring mean.....	56	63	.....	47	.....	.....	.....	11.1	33	5.0	20.1	4.3	.....	75	3.21	63	3.52	234	58	S.
June.....	76	84	102	66	44	81	70	4.6	12	2.5	3.8	0.0	0.0	76	6.24	60	6.20	297	67	S.
July.....	80	88	107	71	55	87	75	3.6	10	1.6	7.4	0.0	0.0	73	6.65	58	6.76	316	70	S.
August.....	78	86	106	69	52	84	73	2.4	8	3.6	0.9	0.0	0.0	77	6.33	59	6.43	301	71	S.
Summer mean.....	78	86	.....	69	.....	.....	.....	10.6	30	7.7	12.1	0.0	.....	75	6.41	59	6.46	305	69	S.
September.....	70	79	102	61	37	77	65	2.8	7	0.2	3.2	0.0	0.0	78	5.11	61	5.50	267	71	S.
October.....	59	68	91	50	24	66	52	2.3	7	2.1	4.3	T.	0.0	76	3.34	57	3.51	222	70	S.
November.....	44	53	82	37	5	53	33	2.9	9	1.8	2.1	0.8	4.0	77	2.19	65	2.39	156	52	S.
Fall mean.....	58	67	.....	49	.....	.....	.....	8.0	23	4.1	9.6	0.8	.....	77	3.55	61	3.80	215	64	S.
Annual mean.....	56	64	107	48	-22	.....	.....	37.1	115	23.4	49.0	21.1	20.0	76	3.68	63	3.88	227	60	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 14, 15, 20-22, 24, 27, 29; July 1, 13, 24-26; Aug. 9-14, 18.	1898	None.....	July 24; Aug. 21-23, 29; Sept. 2, 3.
1895	Jan. 12; Feb. 2, 4, 5, 7, 8.	June 1-3; July 16; Sept. 11, 18.	1899	Jan. 29, 31; Feb. 8-13.	Aug. 2, 3, 11, 12, 26; Sept. 3-7.
1896	None.....	July 26-31; Aug. 4-9, 11, 15, 21, 22; Sept. 13.	1900	None.....	Aug. 4, 5, 9, 10, 17-21; Sept. 6, 9.
1897	Jan. 25, 26.....	June 17; July 3, 4, 6-10, 23, 30, 31; Aug. 1-3, 26, 28, 29; Sept. 1, 7-15.	1901	Dec. 14, 15, 19, 20.....	June 16, 20-30; July 1-6, 10-13, 15-28; Aug. 2, 8, 9; Sept. 9.
			1902	Feb. 4.....	June 11-14; July 17; Aug. 13.
			1903	Feb. 17, 18.....	July 8-10, 25; Aug. 23, 24.

MISSOURI.

Ozark Plateau: FRANKLIN COUNTY. Station: OAKFIELD.

E. E. STEINES, Observer.

[Established by the Weather Bureau in June, 1892. Latitude, 38° 31' N. Longitude, 90° 45' W. Elevation, 843 feet.]

This station is in the open country and on a high ridge, the ground falling rapidly to the northward and southward. The surrounding country is much broken, the valleys being narrow, and the hills from 250 to 300 feet in height.

From the establishment of the station until July, 1898, the maximum and minimum thermometers were exposed under a north porch of the observer's house, 10 feet above the ground. Since that date they have been exposed in a cotton region instrument shelter, located about 80 feet southeast of the house. The shelter is over sod, and the thermometers are 5 feet above ground. The rain gage is located 20 feet southeast of the shelter, 30 feet from a small cedar tree on the northeast, and 20 feet from a low paling fence on the north. To the south and west there are no obstructions for some distance.

All mean temperatures have been computed from daily readings of maximum and minimum thermometers, made at 8 p. m., seventy-fifth meridian time.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	43	67	26	-16	40	29	2.4	8	5.0	0.8	3.3	4.0	S. S. NW.
January.....	32	42	73	23	-13	37	25	1.9	7	1.1	4.0	4.5	7.0	
February.....	30	40	74	21	-21	37	23	2.4	8	1.8	1.4	5.4	5.0	
Winter mean.....	32	42		23				6.7	23	7.9	6.2	13.2		S.
March.....	43	55	85	34	0	51	40	4.3	11	3.0	8.3	4.5	6.0	S. S. SE.
April.....	57	68	89	46	22	64	53	4.1	11	3.2	4.3	1.1	6.0	
May.....	67	78	92	56	31	72	64	5.4	12	2.0	8.0	0.0	0.0	
Spring mean.....	56	67		45				13.8	34	8.2	20.6	5.6		S.
June.....	75	86	105	64	41	79	68	4.2	10	1.2	6.2	0.0	0.0	S. S. SW.
July.....	78	89	112	68	52	87	75	4.6	8	0.5	6.8	0.0	0.0	
August.....	77	88	107	66	50	82	75	2.8	6	2.3	1.6	0.0	0.0	
Summer mean.....	77	88		66				11.6	24	4.0	14.6	0.0		S.
September.....	70	82	104	59	30	77	64	2.7	7	0.7	4.3	0.0	0.0	S. S.
October.....	59	71	93	48	25	65	52	2.4	6	3.0	3.5	T.	0.0	
November.....	45	55	80	35	9	52	41	2.8	8	1.3	2.4	1.2	6.0	
Fall mean.....	58	69		47				7.9	21	5.0	10.2	1.2		S.
Annual mean.....	56	66	112	46	-21			40.0	102	25.1	51.6	20.0	7.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 28.	Aug. 14.	1900	Feb. 17.	Aug. 18, 21.
1895	Jan. 12; Feb. 2, 4, 5, 7-9.	None.	1901	Dec. 14-16, 18-20.	June 16, 22-30; July 1-5, 10-13, 15, 17-24, 28; Aug. 2, 3, 8, 9.
1896	None.	Aug. 7.			
1897	Jan. 25-28.	July 8; Aug. 26.	1902	Jan. 27; Feb. 3-5.	None.
1898	Dec. 14.	None.	1903	Jan. 12; Feb. 16-19; Dec. 13.	Do.
1899	Jan. 29-31; Feb. 1, 8-13; Mar. 7.	Sept. 4-7.			

MISSOURI.

Southwestern Lowlands: BARTON COUNTY. Station: LAMAR.

E. H. ADAMS, Observer.

[Established by the Missouri State Weather Service in December, 1877; discontinued in June, 1884; established as a regular station of the Signal Service in March, 1885; discontinued December 21, 1888; reestablished as a voluntary station of the Signal Service in May, 1890. Latitude, 37° 32' N. Longitude, 94° 15' W. Elevation, 964 feet.]

The station is located at the observer's residence, just outside the business portion of the city of Lamar. The surrounding country is open prairie and practically level.

The station is equipped with maximum and minimum thermometers and a rain gage. The thermometers are exposed in a cotton-region instrument shelter, located over sod, 60 feet northeast of the observer's house. The thermometers are 5 feet above ground. The rain gage is about 12 feet northwest of the shelter and 3 feet above ground. Prior to October, 1896, the thermometers were exposed on the north wall of the house.

Tabulated data are included within the period of observation January, 1878, to December, 1903. The record of monthly mean temperature and highest and lowest monthly means are for about sixteen years, and mean precipitation twenty-six years. The remaining data are for periods varying in length from eight to thirteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	45	71	26	-10	40	28	2.2	4	2.0	2.1	2.3	7.0	SW.
January.....	32	44	75	25	-14	39	19	1.5	3	1.2	0.7	3.9	6.0	SW.
February.....	34	42	72	22	-25	41	25	2.5	4	0.7	2.3	5.6	5.5	SW.
Winter mean.....	34	44	.....	24	.....	.....	.....	6.2	11	3.9	5.1	11.8	.....	SW.
March.....	45	57	84	34	1	50	41	3.0	6	4.9	4.2	2.0	8.0	SW.
April.....	58	70	91	46	22	63	55	4.0	8	2.0	2.5	T.	T.	SW.
May.....	66	78	93	56	29	72	62	5.6	9	2.4	8.0	0.0	0.0	SW.
Spring mean.....	56	68	.....	45	.....	.....	.....	12.6	23	9.3	14.7	2.0	.....	SW.
June.....	74	86	102	63	41	79	69	4.7	8	1.0	8.3	0.0	0.0	SW.
July.....	78	90	108	67	50	86	76	4.1	5	2.0	2.4	0.0	0.0	SW.
August.....	77	90	104	66	48	83	73	4.0	5	3.5	8.5	0.0	0.0	SW.
Summer mean.....	76	89	.....	65	.....	.....	.....	12.8	18	6.5	19.2	0.0	.....	SW.
September.....	70	83	104	58	33	76	64	4.4	6	4.9	8.7	0.0	T.	SW.
October.....	59	73	96	47	27	67	53	2.9	4	1.9	1.9	T.	T.	SW.
November.....	46	57	80	35	8	53	43	2.2	4	1.6	4.5	0.3	3.0	SW.
Fall mean.....	58	71	.....	47	.....	.....	.....	9.5	14	8.4	15.1	0.3	.....	SW.
Annual mean.....	56	68	108	45	-25	.....	.....	41.1	66	28.1	54.1	14.1	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24-26; Feb. 15....	None.	1899	Jan. 29-31; Feb. 8-12; Dec. 15.	Aug. 9, 11, 12, 19, 21-24; Sept. 5, 6.
1895	Jan. 12, 26, 30; Feb. 2-5, 7-9.	Do.	1900	Feb. 17.....	June 27; Aug. 21.
1896	None.....	Do.	1901	Dec. 14, 15, 18-20.....	June 24-26, 29, 30; July 1-4, 7-17, 19-25; Aug. 2, 3.
1897	Jan. 27, 28.....	July 7, 8, 30, 31; Aug. 1, 3, 4, 26; Sept. 2-5, 12.	1902	Jan. 27; Feb. 2, 4.....	Aug. 18.
1903	Dec. 14.....	None.	1903	Jan. 12; Feb. 16, 17....	None.

MISSOURI.

Ozark Plateau: IRON COUNTY. Station: IRONTON.

W. H. DELANO, Observer.

[Established by the Missouri Weather Service in January, 1879. Latitude, 37° 36' N. Longitude, 90° 38' W. Elevation, 925 feet.]

This station is located in the Arcadia Valley, about one-fourth mile southeast of the village of Ironton. The Arcadia Valley is near the summit of the Ozark Plateau, and is about 3 miles in length from east to west and about 1½ miles in width. It is shut in on all sides by hills, which rise abruptly to a height of from 300 to 600 feet.

The maximum and minimum thermometers are exposed in a cotton-region instrument shelter, located over sod in an open space, 75 feet south of the observer's residence, and is 5 feet above ground. The rain gage is on the ground, 40 feet east of the shelter and 70 feet southeast of the house.

Prior to June, 1896, the monthly mean temperatures were computed from tridaily (7 a. m., 2 p. m., and 9 p. m.) readings of an exposed thermometer; since that date they have been computed from the daily extremes. The two series have been combined in a general mean.

Tabulated data are included in the period of observation June 1, 1878, to December 31, 1903. All temperature data (except the mean of the maxima and mean of the minima, which are for seven years) and wind direction are for a period of twenty-two years; rainfall, twenty-five years. The remaining data are for periods varying in length from ten to fourteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	43	76	23	-17	52	23	3.2	7	4.4	1.2	2.5	4.5	N.
January.....	32	44	76	24	-23	47	20	2.8	8	1.7	10.5	2.3	4.5	N.
February.....	33	41	80	20	-26	45	22	3.5	7	2.4	5.0	5.9	5.0	N,NW.
Winter mean.....	33	43		22				9.5	22	8.5	16.7	10.7		N.
March.....	44	56	86	34	2	51	33	4.0	9	4.9	8.4	1.6	4.5	N.
April.....	56	67	92	42	17	64	50	4.1	9	3.9	7.0	1.0	6.0	S.
May.....	65	80	96	52	26	71	56	5.1	10	0.5	3.8	0.0	0.0	S.
Spring mean.....	55	68		53				13.2	28	9.3	19.2	2.6		S.
June.....	72	86	103	60	36	78	65	5.1	9	2.4	1.4	0.0	0.0	S.
July.....	76	91	113	64	47	83	70	4.4	8	2.4	6.8	0.0	0.0	S.
August.....	73	91	109	61	43	79	66	3.2	6	1.4	5.6	0.0	0.0	SW.
Summer mean.....	74	89		62				12.7	23	6.2	13.8	0.0		S.
September.....	67	84	104	52	23	74	56	3.0	6	1.3	8.4	0.0	0.0	S.
October.....	56	73	96	42	18	64	46	2.8	6	1.2	1.5	T.	T.	S.
November.....	43	57	83	34	-13	52	32	4.1	7	2.3	3.6	0.6	3.5	N.
Fall mean.....	55	71		43				9.9	19	4.8	13.5	0.6		S.
Annual mean.....	55	68	113	42	-26			45.3	92	28.8	63.2	13.9	6.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 28...	Aug. 14.	1900	Jan. 29; Feb. 1, 17...	Aug. 17, 20, 21; Sept. 3-7.
1895	Jan. 12, 31; Feb. 1-5, 7-9	None.	1901	Feb. 23; Dec. 14, 15, 18-21.	June 16, 22-24, 27-29; July 4, 5, 10-13, 15, 17-24, 27, 28; Aug. 2, 3, 15, 20.
1896	None.	Aug. 4-9, 15.	1902	Jan. 27; Feb. 15, 16...	Aug. 14.
1897	Jan. 25-28, 30; Feb. 27...	July 31; Aug. 2, 3; Sept. 11, 12, 16.	1903	Feb. 16, 17, 19.....	None.
1898	Dec. 14.	None.			
1899	Jan. 1, 29-31; Feb. 1, 2, 8-14.	Aug. 23, 24.			

MISSOURI.

Ozark Table-land: GREENE COUNTY. Station: SPRINGFIELD.

J. S. HAZEN, Observer.

[Established by Signal Service December 15, 1887. Latitude, 37° 12' N. Longitude, 93° 18' W. Elevation, 1,302 feet.]

This station is near the center of Greene County, being situated upon the crest of the Ozark Mountains, which here is a nearly level table-land and gives only slight indication of a mountain region.

The location of the office was originally on the public square. On June 13, 1894, the office was removed to the second floor of the Government building and has since remained there.

The thermometers are located on the tower of the building, 98 feet above the ground. The rain gage is located on the campus, 42 feet north of the building and 15 feet south of a board fence 8 feet high. A new tipping-bucket gage was installed November 10, 1903, 8 feet west of old gage. It is 5 feet and 8 inches above ground and inclosed in picket fence 6 feet high and 4 by 6 feet in extent. The anemometer is 104 feet above ground.

The humidity as tabulated is from fifteen years' record; remainder of data from full period of observation, sixteen years—September 20, 1887, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	37	45	74	29	-11	52	31	2.6	8	4.0	2.3	3.2	10.0	83	1.68	71	1.95	SE.	
January.....	34	42	74	25	-17	39	28	2.4	9	0.7	2.6	5.6	10.0	83	1.47	71	1.68	SE.	
February.....	33	42	76	25	-29	41	23	2.6	10	1.9	7.3	4.9	7.5	82	1.52	71	1.81	SE.	
Winter mean.....	35	43	.....	26	.....	.....	.....	7.6	27	6.6	12.2	13.7	.....	83	1.56	71	1.81	SE.
March.....	44	53	86	35	3	50	40	3.9	10	4.4	3.2	1.6	5.0	80	2.12	63	2.31	SE.	
April.....	57	66	89	47	22	63	53	3.8	11	2.9	3.7	0.3	1.6	77	3.14	58	3.22	SE.	
May.....	65	74	88	55	32	70	62	5.9	12	3.0	8.1	1.9	.....	81	4.50	62	4.64	S.
Spring mean.....	55	64	.....	46	.....	.....	.....	13.6	33	10.3	15.0	3.8	.....	79	3.25	61	3.39	SE.
June.....	73	82	96	61	46	77	67	4.8	11	3.4	2.7	0.0	0.0	83	6.01	67	6.47	SE.	
July.....	77	86	106	68	53	84	72	4.2	10	1.7	5.0	0.0	0.0	83	6.84	65	7.11	S.	
August.....	76	86	100	66	44	81	73	3.9	8	3.0	2.1	0.0	0.0	83	6.41	63	6.47	SE.	
Summer mean.....	75	85	.....	66	.....	.....	.....	12.9	29	8.1	9.8	0.0	.....	83	6.42	65	6.68	SE.
September.....	69	78	102	59	37	76	63	3.8	9	1.8	4.5	0.0	0.0	82	5.04	63	5.36	SE.	
October.....	58	68	90	48	21	66	53	2.9	7	2.3	7.6	0.1	1.0	80	3.26	59	3.39	SE.	
November.....	45	54	79	36	6	51	41	2.8	9	2.6	6.3	0.5	3.0	81	2.14	64	2.43	SE.	
Fall mean.....	57	67	.....	48	.....	.....	.....	9.5	25	6.7	18.4	0.6	.....	81	3.48	62	3.73	SE.
Annual mean.....	56	65	106	46	-29	.....	.....	43.6	114	31.7	55.4	18.1	10.0	82	3.68	65	3.90	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Dec. 28...	July 2; Aug. 10, 12-15.	1900	Feb. 17.....	Aug. 21.
1895	Jan. 12; Feb. 2, 4, 5, 7, 8.	None.	1901	Dec. 14, 15, 17-20.....	June 25; July 3, 4, 9-14, 16, 17, 19-24; Aug. 2, 3, 25.
1896	None.....	July 27, 31; Aug. 3-8, 14, 15.	1902	Jan. 27; Feb. 2, 4.....	None.
1897	Jan. 25-28.....	July 8, 31; Aug. 3, 26; Sept. 3.	1903	Feb. 17.....	Do.
1898	None.....	None.			
1899	Jan. 29-31; Feb. 8-13; Dec. 15.	Aug. 3, 9, 11, 12, 20, 23, 26; Sept. 4-6.			

MISSOURI.

Ozark Plateau: HOWELL COUNTY. Station: OLDEN.

J. E. BROWN, Observer.

[Established by the Weather Bureau in June, 1892. Latitude, 36° 50' N. Longitude, 91° 54' W. Elevation, 1,246 feet.]

This station is located in the open country, on a high plateau extending in a northwesterly and southeasterly direction and forming the divide between White River on the west and Current River on the east.

In January, 1898, the station was equipped with a cotton-region instrument shelter, which was placed in an open space 25 feet northeast of the observer's house and 5 feet above ground. The shelter is over sod. The rain gage is exposed on the ground, 75 feet southeast of the house and 40 feet from the branches of a small oak tree.

All temperature records at this station are from maximum and minimum thermometers, and the monthly means have been computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	37	48	76	26	-10	42	32	2.6	6	4.0	1.4	1.3	3.5	NW.
January.....	35	45	70	24	-11	39	31	2.3	6	1.4	3.5	1.9	5.0	NW.
February.....	33	44	74	23	-29	40	23	3.3	6	2.2	3.2	3.2	7.0	NW.
Winter mean.....	35	46	.....	24	.....	.....	.....	8.2	18	7.6	8.1	6.4	.....	NW.
March.....	46	58	87	35	4	52	42	5.1	8	3.8	15.2	0.6	2.4	SE.
April.....	57	69	90	46	17	65	54	4.3	8	3.6	2.6	0.2	2.0	SE.
May.....	66	78	90	54	27	71	62	4.8	10	1.2	7.0	0.0	0.0	SE.
Spring mean.....	56	68	.....	45	.....	.....	.....	14.2	26	8.6	24.8	0.8	.....	SE.
June.....	73	84	98	62	41	77	68	3.4	9	0.9	4.1	0.0	0.0	SW.
July.....	77	88	106	65	50	83	74	3.5	8	1.2	3.1	0.0	0.0	SW.
August.....	76	89	103	65	49	79	73	3.1	5	1.3	4.0	0.0	0.0	SW.
Summer mean.....	75	87	.....	64	.....	.....	.....	10.0	22	3.4	11.2	0.0	.....	SW.
September.....	70	82	101	57	29	73	64	3.5	6	1.0	6.2	0.0	0.0	SE.
October.....	60	72	91	47	22	63	54	2.4	5	1.0	3.2	T.	T.	SE.
November.....	46	58	81	35	9	52	42	3.1	5	1.9	2.4	0.2	0.1	NW.
Fall mean.....	59	70	.....	46	.....	.....	.....	9.0	16	3.9	11.8	0.2	.....	SE.
Annual mean.....	56	68	106	45	-29	.....	.....	41.4	82	24.0	55.9	7.4	7.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24, 25; Dec. 28...	July 1; Aug. 12-15.	1899	Jan. 1, 29, 31; Feb. 1, 8-13.	Sept. 5, 6.
1895	Jan. 12; Feb. 2, 4, 7-9 (Oct., Nov., Dec. missing).	None.	1900	Feb. 17, 18.....	Aug. 20 (June, July missing).
1896	None.....	July 31; Aug. 1, 5-8, 14.	1901	Dec. 15, 18, 20.....	July 5, 11, 12, 21-23; Aug. 2, 3.
1897	Jan. 25-29.....	None.	1902	None.....	None.
1898	None.....	Do.	1903	Feb. 17.....	Do.

MISSOURI.

Southeastern Lowlands: BUTLER COUNTY. Station: POPLAR BLUFF.

[Established by the Weather Bureau in July, 1892; discontinued September, 1903. Latitude, 36° 45' N. Longitude, 90° 25' W. Elevation, 400 feet.]

This station was located on a hill in the city of Poplar Bluff, on the west bank of Black River. On that side of the river the country is quite hilly, but immediately to the eastward it is low and flat.

Owing to frequent changes in observers at Poplar Bluff and to the lack of complete records of the location of instruments it is impossible to give a complete description of this station.

It was equipped with maximum and minimum thermometers and rain gage, and from March, 1900, to the closing of the station, the thermometers were exposed in a cotton-region instrument shelter 5 feet above ground. The rain gage was exposed on the ground.

All mean temperatures were computed from the daily extremes.

Tabulated data are included within the period of observation, July 1, 1892, to August 31, 1903. The record is much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.		
December.....	38	55	72	28	- 4	40	36	3.4	7	2.7	1.6	2.6	5.0	S. SW.
January.....	37	48	73	27	- 9	42	32	3.6	7	1.4	7.3	1.8	4.0	NW.
February.....	35	46	77	25	-25	43	26	3.7	7	2.7	3.1	3.5	4.5	NW.
Winter mean.....	37	48		28				10.7	21	6.8	12.0	7.9		NW.
March.....	49	60	83	38	7	53	45	5.4	9	4.8	12.8	0.2	1.0	SW.
April.....	60	72	92	48	23	66	57	4.4	8	3.6	3.4	0.0	0.0	SW.
May.....	69	81	98	57	28	74	64	4.7	8	2.4	(a)	0.0	0.0	SW.
Spring mean.....	59	71		48				14.5	25	10.8		0.2		SW.
June.....	76	89	102	64	43	79	75	5.4	8	1.4	(a)	0.0	0.0	SW.
July.....	79	91	112	66	53	85	76	3.6	6	0.7	(a)	0.0	0.0	SW.
August.....	79	91	109	66	51	82	76	3.2	5	3.7	3.7	0.0	0.0	SW.
Summer mean.....	78	90		65				12.2	19	5.8		0.0		SW.
September.....	72	84	101	58	31	76	68	3.2	6	1.3	10.2	0.0	0.0	SW.
October.....	60	74	92	46	21	64	55	2.7	1	1.9	8.4	T.	T.	SW.
November.....	47	61	83	36	13	50	44	3.5	6	2.0	2.0	T.	T.	SW.
Fall mean.....	60	73		46				9.4	16	5.2	20.6	T.		SW.
Annual mean.....	58	71	112	46	-25			46.8	81	28.6		8.1	5.0	SW.

^a No record for May, June, or July, but the rainfall for the other 9 months was greater than for any other whole year.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO MAY 30, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	Jan. 24-26; Dec. 28.	Aug. 14.	1900	Feb. 17, 18.	Aug. 16, 17, 20, 21.
1895	Jan. 12; Feb. 7-9.	None.	1901	Dec. 15, 20.	June 22, 23, 26-29; July 2-5, 10-12, 14-16,
1896	None.	June missing; July 6, 15.			18-24, 27-29, 31; Aug. 2, 3, 8, 9.
1897	Jan. 29.	July 31 (record broken); Aug. 1-4, 28,	1902	None.	July 15, 16; Aug. 3, 5, 15.
		29; Sept. 2.	1903	Jan. missing; Feb. 17.	None.
1898	Dec. 14.	None; May, June, July missing.			
1899	Jan. 31; Feb. 1, 8-10, 12-14; Dec. missing.	Sept. 5-7.			

MISSOURI.

Southeastern Lowlands: SCOTT COUNTY. Station: SKESTON.

A. A. HARRISON, Observer.

[Established by the Weather Bureau in May, 1894. Latitude, 36° 52' N. Longitude, 89° 36' W. Elevation, 328 feet.]

This station is at the western limits of the village of Skeston, and is practically in the open country. The country in the immediate vicinity and for some distance in all directions is a level plain.

The instruments are located in the observer's garden, 70 feet northwest of his house. The maximum and minimum thermometers are exposed in a cotton-region instrument shelter, and are 5 feet above the ground. The rain gage is on the ground, 20 feet south of the shelter. There are no trees or other objects near the instruments. The instruments have been in their present location since January, 1898. Prior to that date the thermometers were exposed on the north side of a large tree, with boards placed above them and on either side to shelter them from the sun.

All temperature records at this station are from maximum and minimum thermometers, and all means have been computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	37	47	72	28	- 8	43	33	3.8	7	4.7	2.0	1.3	9.0	SW.
January.....	38	47	70	28	- 8	40	33	3.9	7	2.0	6.5	4.0	8.0	N.
February.....	34	44	78	25	-23	43	25	3.6	8	5.0	1.3	4.5	6.5	N.
Winter mean.....	36	46	.....	27	.....	.....	.....	11.3	22	11.7	9.8	9.8	.....	SW.
March.....	48	58	83	38	6	52	43	5.6	11	4.5	11.9	0.3	1.0	SW.
April.....	59	70	91	47	28	67	54	3.9	9	4.3	3.3	0.1	1.0	SW.
May.....	67	80	97	56	31	72	62	4.2	8	3.0	8.0	0.0	0.0	SW.
Spring mean.....	58	69	.....	47	.....	.....	.....	13.7	28	11.8	23.2	0.4	.....	SW.
June.....	75	86	105	64	43	78	68	4.0	9	2.2	3.4	0.0	0.0	SW.
July.....	79	91	111	67	50	83	77	2.8	8	0.7	5.9	0.0	0.0	SW.
August.....	78	90	105	67	51	82	76	3.2	7	7.0	2.7	0.0	0.0	SW.
Summer mean.....	77	89	.....	66	.....	.....	.....	10.0	24	9.9	12.0	0.0	.....	SW.
September.....	71	84	100	58	29	76	66	3.5	6	2.0	9.1	0.0	0.0	SW.
October.....	60	73	95	47	24	64	55	2.9	5	2.2	8.7	0.0	0.0	SW.
November.....	48	59	82	37	14	53	43	3.8	6	1.7	2.5	0.2	1.1	SW.
Fall mean.....	60	72	.....	47	.....	.....	.....	10.2	17	5.9	20.3	0.2	.....	SW.
Annual mean.....	58	69	111	47	-23	.....	.....	45.2	91	39.3	65.3	10.4	9.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	.....	June 14, 15, 29, 30; July 1, 31; Aug. missing.	1898	Dec. 14.....	None.
1895	Jan. 31 (record broken); Feb. 2, 4, 5, 7-10.	Record broken.	1899	Jan. 30, 31; Feb. 1; 8-12	Aug. 10, 12; Sept. 6.
1896	None.....	None; June and July missing.	1900	Feb. 17.....	Aug. 9, 14-21.
1897	do.....	Aug. 1-4.	1901	Dec. 15, 16, 18-21.....	June 27, 28; July 3, 11, 12, 15-17, 19-24, 28, 29; Aug. 2, 3, 9.
			1902	Feb. 15.....	July 17; Aug. 3.
			1903	Feb. 17.....	None.

ILLINOIS.

By WILLIAM G. BURNS,
Section Director.

ILLINOIS.

Illinois, one of the interior States, is situated between latitude 36° 59' and 42° 30' N., and longitude 87° 35' and 91° 40' W.; extreme length, north and south, 385 miles; extreme breadth, east and west, 218 miles. It lies partly in the upper Mississippi Valley, the upper Lakes region, and the lower Ohio Valley. It is bounded on the west and southwest by Iowa and Missouri, from which it is separated by the Mississippi River; on the east by Indiana, from which it is separated in part by the Wabash River. The Ohio River separates it from Kentucky on the south and southeast. It has an area of 56,650 square miles. The State is divided into 102 counties. The whole State lies within the great prairie region, and has the physical appearance of a broad plain, sloping slightly toward the south and southwest. The average elevation is about 600 feet. The extremes in elevation range from 300 feet in the extreme southern portion to 1,257 feet in Jo Daviess County.

The following areas of Illinois between 100-foot contours are taken from the Water Resources of Illinois, by Frank Leverett:

	Square miles.
Above 1,200 feet.....	1
Between 1,100 and 1,200 feet.....	6
Between 1,000 and 1,100 feet.....	118
Between 900 and 1,000 feet.....	1,009
Between 800 and 900 feet.....	3,981
Between 700 and 800 feet.....	11,127
Between 600 and 700 feet.....	20,058
Between 500 and 600 feet.....	9,603
Between 400 and 500 feet.....	8,822
Between 300 and 400 feet.....	1,925

The principal determining factor in the climate of the State is latitude. The changes in elevation from north to south are so slight that they need not be entertained.

Temperature.—In mean temperature there is a gradual decrease of about 2° for each degree of latitude, from the extreme south to the northern tier of counties. The mean for Cairo is 58° and that of Chicago 48°. The mean temperature of Springfield, in the central district, 52°, represents nearly the mean of the two extremes. The climate of the State represents in marked degree the true continental type. The summers are hot and the winters are very cold. The highest temperature ever recorded in the State was 115° at Centralia on July 22, 1901; the lowest—28°, at Sterling, February 9, 1888. Other low temperatures recorded were—27° at Peoria, January 5, 1884;—27° at Lanark, February 10, 1899, and—26° at Zion, January 25, 1897.

Precipitation.—The average rainfall estimated from 13 stations, including 3 Weather Bureau stations, is 36.5 inches. The stations have been selected with a view of giving average results, and the records cover periods extending from ten to forty-nine years.

The region of greatest rainfall is the southern district; the amount decreases gradually toward the north. The average for the southern district is 39 inches; for the central district, 36 inches; for the northern district, 34 inches. The amount for the wettest year was 61.6 inches at Cairo and the amount for the driest year 22.9 inches at Peoria. The distribution of rainfall by seasons is as follows: Northern district, winter, 5.6 inches; spring, 9.5 inches; summer, 10.6 inches; fall, 8.3 inches. Central district, winter, 6.7 inches; spring, 10.5 inches; summer, 10.7 inches; fall, 8.5 inches. Southern district, winter, 8.7 inches; spring, 11.7 inches; summer, 10.2 inches; fall, 8.6 inches. In the winter and spring the rainfall is heaviest in the southern district; during the remainder of the year the average measurements do not vary much in the several districts. The average number of rainy days is about one hundred.

There is a yearly average of 28 thunderstorms. Tornadoes are of infrequent occurrence. There is an average occurrence of hail twice a year.

In a discussion of the climate of the crop-growing season a consideration of rainfall and its distribution and temperature, with its interval between last killing frost in spring and first killing frost in autumn, is of first importance. During the crop-growing season, the spring and summer months, the greater portion of the total amount of precipitation, about 58 per cent, occurs. In the winter months the ground is well covered with snow, where the most rigorous temperatures obtain, affording ample protection to fall-sown cereals and grasses.

The distribution of rainfall during the crop season is equable throughout the State, the average number of rainy days being about fifty-five.

Unfavorable conditions arise from excessive rains in the early spring months, which retard plowing and the planting and sowing of seeds. Heavy thundershowers, at or near the time of harvesting, sometimes cause considerable damage.

While the rainfall is usually ample, droughts at critical periods have occurred and great losses ensued, but the complete failure of any crop over the entire State is unknown. A marked deficiency in rainfall between June and September is highly detrimental to the corn crop.

The crop-growing season, the interval between the last killing frost in spring and the first killing frost in fall, averages about one hundred and seventy-six days. The interval is longest in the southern and shortest in the northern district. The average dates of the last killing frost in spring are as follows: Southern district, April 12; central district, April 22; northern district, April 29. The following are the average dates of first killing frost in fall: Southern district, October 18; central district, October 11; northern district, October 9. The latest killing frost in spring recorded in the southern district was May 14, and the earliest in fall, September 14; in the central district, the latest killing in spring, June 6, and the earliest killing in fall, September 14; in the northern district, the latest killing in spring, June 8, and the earliest killing in fall, September 18.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

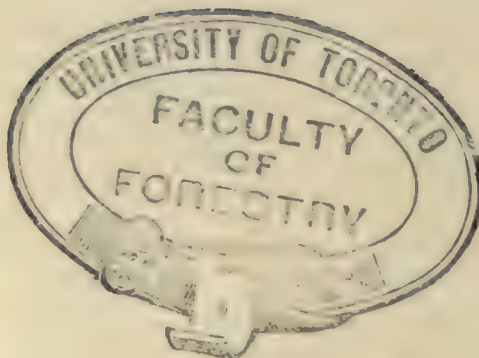
County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (see Griggsville)		Central		Logan (see Springfield)		Central	
Alexander	Cairo	Southern	695	McDonough (see Peoria)		do	
Bond	Greenville	do	692	McHenry (see Winnebago)		Northern	
Boone (see Winnebago)		Northern		McLean	Bloomington	Central	688
Brown (see Griggsville)		Central		Macon (see Springfield)		do	
Bureau (see Galva)		Northern		Macoupin (see Greenville)		do	
Calhoun (see Griggsville)		Central		Madison (see Greenville)		Southern	
Carroll (see Winnebago)		Northern		Marion (see Greenville)		do	
Cass (see Springfield)		Central		Marshall (see Galva)		Northern	
Champaign	Philo	do	691	Mason (see Springfield)		Central	
Christian (see Springfield)		do		Massac (see Cairo)		Southern	
Clark (see Olney)		do		Menard (see Springfield)		Central	
Clay (see Olney)		Southern		Mercer (see Galva)		Northern	
Clinton (see Greenville)		do		Monroe (see Tilden)		Southern	
Coles (see Philo)		Central		Montgomery (see Greenville)		Central	
Cook	Chicago	Northern	684	Morgan (see Springfield)		do	
Crawford (see Olney)		Central		Moultrie (see Springfield)		do	
Cumberland (see Olney)		do		Ogle (see Winnebago)		Northern	
Dekalb (see Winnebago)		Northern		Peoria	Peoria	Central	687
Dewitt (see Philo)		Central		Perry (see Tilden)		Southern	
Douglas (see Philo)		do		Piatt (see Philo)		Central	
Dupage (see Chicago)		Northern		Pike	Griggsville	do	689
Edgar (see Philo)		Central		Pope (see Cairo)		Southern	
Edwards (see Olney)		Southern		Pulaski (see Cairo)		do	
Effingham (see Greenville)		Central		Putnam (see Galva)		Northern	
Fayette (see Greenville)		do		Randolph	Tilden	Southern	694
Ford (see Bloomington)		do		Richland	Olney	do	693
Franklin (see Tilden)		Southern		Rock Island (see Galva)		Northern	
Fulton (see Peoria)		Central		St. Clair (see Tilden)		Southern	
Gallatin (see Cairo)		Southern		Saline (see Cairo)		do	
Greene (see Griggsville)		Central		Sangamon	Springfield	Central	690
Grundy (see Ottawa)		Northern		Schuyler (see Griggsville)		do	
Hamilton (see Tilden)		Southern		Scott (see Griggsville)		do	
Hancock (see Peoria)		Central		Shelby (see Greenville)		do	
Hardin (see Cairo)		Southern		Stark (see Galva)		Northern	
Henderson (see Galva)		Northern		Stephenson (see Winnebago)		do	
Henry	Galva	do	685	Tazewell (see Bloomington)		Central	
Iroquois (see Bloomington)		Central		Union (see Cairo)		Southern	
Jackson (see Tilden)		Southern		Vermilion (see Philo)		Central	
Jasper (see Olney)		Central		Wabash (see Olney)		Southern	
Jefferson (see Tilden)		Southern		Warren (see Galva)		Northern	
Jersey (see Greenville)		Central		Washington (see Tilden)		Southern	
Jo Daviess (see Winnebago)		Northern		Wayne (see Olney)		do	
Johnson (see Cairo)		Southern		White (see Olney)		do	
Kane (see Chicago)		Northern		Whiteside (see Winnebago)		Northern	
Kankakee (see Ottawa)		do		Will (see Ottawa)		do	
Kendall (see Ottawa)		do		Williamson (see Cairo)		Southern	
Knox (see Galva)		do		Winnebago	Winnebago	Northern	683
Lake (see Chicago)		do		Woodford (see Bloomington)		do	
LaSalle	Ottawa	do	686				
Lawrence (see Olney)		Southern					
Lee (see Ottawa)		Northern					
Livingston (see Bloomington)		do					

STATE SUMMARY.

Station.	Number.	Temperature.										Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.			
		° F.	° F.	° F.	° F.		° F.						
Winnebago.....	1	47	58	37	110	July, 1901.....	-25	February, 1895.....	15	135			
Chicago.....	2	48	55	41	103	do.....	-23	December, 1872.....	7	110			
Galva.....	3	50	60	39	108	do.....	-25	February, 1899.....	26	135			
Ottawa.....	4	50	62	39	112	do.....	-26	January, 1893.....	33	134			
Peoria.....	5	53	62	44	106	July, 1887.....	-27	January, 1884.....	28	110			
Bloomington.....	6	52	64	39	108	July, 1901.....	-24	....., 1895.....	46	124		
Griggsville.....	7	53	63	44	110	do.....	-22	February, 1899.....	31	101			
Springfield.....	8	52	62	44	107	do.....	-22	January, 1884.....	21	101			
Philo.....	9	51	62	40	104	do.....	-25	January, 1894.....	33	127			
Greenville.....	10	54	66	44	113	do.....	-21	February, 1899.....	50	102			
Olney.....	11	55	64	47	109	do.....	-20	.....do.....	41	86		
Tilden.....	12	55	65	46	111	do.....	-23	.....do.....	33	87		
Cairo.....	13	58	66	50	106	do.....	-16	January, 1884.....	26	62			

STATE SUMMARY—Continued.

Station.	Num- ber.	Frost.				Precipitation				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>
Winnebago.....	1	Oct. 2	May 2	Sept. 18	June 6	32.6	10.2	10.1	7.2	5.1
Chicago.....	2	Oct. 16	May 1	do	June 8	33.4	8.7	10.1	8.2	6.4
Galva.....	3	Oct. 12	Apr. 29	Sept. 29	May 31	33.2	9.4	11.6	7.9	4.3
Ottawa.....	4	Oct. 7	Apr. 23	Sept. 19	May 21	36.7	9.6	10.7	9.9	6.5
Peoria.....	5	Oct. 19	Apr. 12	Sept. 29	May 11	34.7	9.6	10.8	8.2	6.1
Bloomington.....	6	Oct. 7	Apr. 27	Sept. 18	June 6	36.1	10.8	10.4	8.1	6.8
Griggsville.....	7	Oct. 19	Apr. 19	Sept. 29	May 30	37.0	11.8	10.9	8.0	6.3
Springfield.....	8	Oct. 16	Apr. 20	Sept. 25	May 22	37.4	11.0	10.0	8.8	7.6
Philo.....	9	Sept. 24	May 3	Sept. 14	June 6	36.0	9.7	11.3	8.3	6.7
Greenville.....	10	Oct. 15	Apr. 14	Sept. 19	May 6	39.5	12.1	10.1	8.6	8.3
Olney.....	11	Oct. 16	Apr. 20	Sept. 30	May 14	38.8	12.1	10.2	8.2	7.2
Tilden.....	12	do	Apr. 7	Sept. 14	May 1	37.1	11.2	10.2	8.5	7.2
Cairo.....	13	Oct. 27	Mar. 29	Sept. 30	Apr. 19	41.6	11.4	10.4	9.1	10.7



ILLINOIS.

Northern District: WINNEBAGO COUNTY. Station: WINNEBAGO.

FRANK J. OSBORN, Observer.

[Established by Signal Service in April, 1888. Latitude, 42° 18' N. Longitude, 89° 12' W. Elevation, 900 feet.]

This station is located 6 miles southwest of the village of Winnebago, on a slightly rolling prairie, one-half mile northwest of timber land and 6 miles northwest of Rock River.

The thermometers are exposed in a standard Weather Bureau shelter 5½ feet above the ground. The shelter is 40 feet northeast of the observer's house and in an open yard 60 feet from low trees.

The rain gage is near the instrument shelter, and its top is 3 feet above the ground.

Prior to 1893 monthly mean temperatures were determined from observed readings at 7 a. m., 2 p. m., and 9 p. m.: after that time from the daily extremes of temperature.

Mean of the maximum and minimum temperature and absolute maximum temperature are for the period of observation January, 1893, to December, 1903; the remaining data cover the period April 1, 1888, to December 31, 1903, with data for June, 1890, July to December, 1891, and the entire year 1892 missing.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.	25	31	62	16	-21	39	17	1.6	6	2.0	2.1	5.9	6.0	W.
January.	21	28	60	13	-23	26	7	1.7	6	1.1	0.6	9.5	8.0	W.
February.	20	27	63	9	-25	30	13	1.8	6	1.5	1.4	11.5	12.0	W.
Winter mean.	22	29		13				5.1	18	4.6	4.2	26.9		W.
March.	33	42	81	25	-15	41	28	2.8	8	3.5	2.9	8.9	14.0	SW.
April.	48	60	89	38	14	54	44	3.0	8	0.4	1.7	1.2	3.0	S.
May.	59	71	92	48	28	66	53	4.4	12	2.8	7.6	0.1	1.0	W.
Spring mean.	47	57		37				10.2	28	6.7	12.2	10.2		SW.
June.	68	80	99	56	32	71	63	3.2	9	2.8	8.8	0.0	0.0	S.
July.	74	85	110	61	41	80	71	4.1	8	3.8	5.8	0.0	0.0	S.
August.	71	83	100	58	40	77	68	2.8	7	1.2	1.5	0.0	0.0	SW.
Summer mean.	71	83		58				10.1	24	7.8	16.1	0.0		S.
September.	63	75	98	52	18	69	57	2.9	8	3.2	4.7	0.0	0.0	S.
October.	51	63	89	41	11	60	44	2.3	6	0.9	1.6	0.2	2.0	S.
November.	36	45	72	27	-6	45	32	2.0	7	1.2	3.1	5.3	8.0	SW.
Fall mean.	50	61		40				7.2	21	5.3	9.4	5.5		S.
Annual mean.	47	58	110	37	-25			32.6	91	24.4	42.6	42.6	14.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 25.....	July 12, 15-19, 24, 26, 27; Aug. 1, 8.	1901	Jan. 1; Feb. 5, 6; Dec. 14, 15, 18-20.	June 24, 25, 27, 28, 30; July 1, 2, 4, 9, 10, 14-17, 19-28; Aug. 7, 14; Sept. 6.
1895	Jan. 9, 27, 28, 30; Feb. 1, 2, 4, 5, 7-9, 11, 12.	July 7.	1902	Jan. 27, 28; Feb. 3-5; Dec. 8.	None.
1896	Jan. 4; Feb. 17, 20, 21.	July 14; Aug. 4, 5.	1903	Feb. 17, 18; Dec. 13, 14, 17, 26, 30.	Do.
1897	Jan. 24-26.	July 8, 9.			
1898	Feb. 1, 3.	None.			
1899	Jan. 28-31; Feb. 7-13.	Aug. 19.			
1900	Jan. 31; Feb. 18, 16, 24, 25.	Aug. 4-9, 18.			

ILLINOIS.

Northern Section: COOK COUNTY. Station: CHICAGO.

H. J. Cox, District Forecaster.

[Established January, 1871. Latitude, 41° 53' N. Longitude, 87° 37' W. Elevation of city, 595 feet.]

This station is located in the Auditorium tower,^a about 1,000 feet from Lake Michigan. The lake shore north of Chicago runs nearly north and south, but near the city it gradually changes and runs from northwest to southeast as it approaches the extreme end of the lake, consequently at the station any wind between north and southeast is from the lake.

The meteorological instruments are exposed on the roof of the tower, which is 40 by 70 feet, at a considerable elevation. The thermometers are 241 feet, the rain gage 238 feet, and the anemometer 274 feet above ground. From the center of the main roof of the tower a secondary tower 9 by 18 feet rises about 25 feet higher, the longer sides facing the north and south. The instrument shelter is located about 6 feet from the north wall of this secondary tower, and the rain gage is 19 feet west of it, near the coping of the main roof.

Tabulated data are from the following periods of observation: Temperature, thirty-one and one-half years, July, 1872, to December, 1903; snowfall, nineteen years, October, 1884, to December, 1903; humidity, fifteen years, July, 1888, to December, 1903; sunshine, ten years, 1894 to 1903; wind direction, thirty-two years, 1872-1903. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.				Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	29	36	68	22	-23	43	20	2.1	11	1.7	1.6	6.6	83	1.35	79	1.60	108	38	SW.
January.....	24	31	65	16	-20	40	12	2.0	11	1.2	1.7	10.2	84	1.14	81	1.31	135	51	SW.
February.....	26	33	63	19	-21	38	15	2.3	11	2.0	4.7	11.5	84	1.14	80	1.48	156	53	W.
Winter mean.....	26	33	63	19	-21	40	15	6.4	33	4.9	8.0	28.3	84	1.21	80	1.46	133	51	SW.
March.....	34	41	80	28	-12	44	28	2.5	12	3.4	0.4	5.0	80	1.55	76	1.80	188	51	NE. ^a
April.....	46	54	88	39	17	53	39	2.7	11	0.3	3.7	0.8	75	2.30	70	2.57	247	62	NE.
May.....	57	64	94	49	27	66	52	3.5	12	2.2	7.3	T.	75	3.51	68	3.53	285	63	NE.
Spring mean.....	46	53	88	39	27	53	43	8.7	35	5.9	11.4	5.8	77	2.45	71	2.63	240	59	NE.
June.....	66	74	98	59	40	71	61	3.7	11	2.4	5.6	0.0	76	5.15	71	5.14	308	68	NE.
July.....	72	80	103	65	50	77	67	3.6	9	4.2	5.5	0.0	73	5.82	67	5.67	327	71	SW.
August.....	71	77	98	65	48	76	67	2.8	9	2.0	1.2	0.0	74	5.36	70	5.96	291	61	NE. ^a
Summer mean.....	70	77	98	63	49	74	64	10.1	29	8.6	12.3	0.0	74	5.44	69	5.72	309	69	NE. ^a
September.....	64	71	98	57	32	70	60	3.0	9	2.9	1.4	0.0	76	4.25	67	4.85	237	63	SW.
October.....	53	57	87	44	14	61	46	2.6	9	1.3	7.4	T.	74	2.99	67	3.14	210	61	S.
November.....	39	45	75	32	-2	47	31	2.6	11	0.8	5.3	2.5	70	1.89	74	2.11	125	42	SW.
Fall mean.....	52	58	84	45	14	59	47	8.2	29	5.0	14.1	2.5	77	3.04	69	3.37	191	55	SW.
Annual mean.....	48	55	103	41	-23	60	47	33.4	126	24.4	45.8	36.6	78	3.04	72	3.30	218	57	SW.

^a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 21; Dec. 28.	July 24; Aug. 8.	1900	Jan. 28-31; Feb. 1, 16, 17, 24, 25; Mar. 16, 17.	None.
1895	Jan. 4, 12, 24, 27, 28, 30, 31; Feb. 1, 2, 4, 5, 7, 9, 11; Dec. 3.	June 3.	1901	Jan. 1; Feb. 6, 22; Dec. 14-16, 18-21.	June 30; July 4, 10, 20, 21, 27.
1896	Jan. 3-5; Feb. 19-21.	Aug. 5, 8.	1902	Jan. 26-28; Feb. 2-5, 8; Dec. 8.	None.
1897	Jan. 24-26; Feb. 27; Dec. 18, 23, 24.	July 3.	1903	Jan. 10-13; Feb. 17-19; Dec. 13-15, 25, 26, 29, 30.	Do.
1898	Feb. 1-3; Dec. 31.	None.			
1899	Jan. 1, 27-31; Feb. 4, 7-13; Dec. 30, 31.	Sept. 5, 7.			

^a Since removed to fourteenth floor of Federal building.

ILLINOIS.

Northern District: HENRY COUNTY. Station: GALVA.

F. U. WHITE, Observer.

[Established by United States Weather Bureau January 1, 1893. Latitude, 41° 11' N. Longitude, 90° 1' W. Elevation, 842 feet.]

Galva is near the summit of the watershed between the Mississippi and the Illinois rivers, the surrounding country being gently rolling prairie, with no decided elevations or depressions.

The station is near the northern limits of the village. It is fairly open to the north, but obstructed in other directions by dwellings and other buildings.

The maximum and minimum thermometers are of Government pattern and are exposed in the standard Weather Bureau shelter. The thermometers are 6 feet above the sod. The shelter stands 33 feet west of a one and one-half-story residence.

The rain gage stands 24 feet south of the shelter. It rests in the ordinary wooden support which stands on the ground. Its top is 3 feet above sod.

Tabulated data are for the period of observation, January 1, 1893, to December 31, 1903. The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	34	60	18	-18	32	20	1.3	7	1.1	0.6	5.3	7.3	NW.
January.....	23	32	63	14	-19	28	10	1.6	7	1.1	3.4	7.4	8.5	NW.
February.....	20	30	66	12	-25	27	16	1.4	7	1.8	1.4	9.0	10.0	NW.
Winter mean.....	23	32		14				4.3	21	4.0	5.4	21.7		NW.
March.....	36	46	84	28	-4	44	30	2.9	9	2.7	5.4	4.9	6.7	SE.
April.....	51	62	91	39	11	57	48	2.5	9	1.0	2.8	1.3	8.0	SE.
May.....	62	74	93	50	16	68	57	4.0	11	1.5	8.7	0.0	0.0	SW.
Spring mean.....	50	61		39				9.4	29	5.2	16.9	6.2		SE.
June.....	70	82	100	58	34	74	64	3.7	9	3.7	9.9	0.0	0.0	SW.
July.....	75	88	108	62	46	81	73	4.5	8	4.6	1.0	0.0	0.0	SW.
August.....	72	85	99	60	41	79	70	3.4	8	1.4	7.1	0.0	0.0	SW.
Summer mean.....	73	85		60				11.6	25	9.7	18.0	0.0		SW.
September.....	65	77	101	53	23	72	61	4.4	10	2.8	3.8	0.0	0.0	SW.
October.....	54	65	93	42	15	62	46	1.8	7	1.2	2.7	0.2	1.9	NW.
November.....	37	47	75	28	-4	46	33	1.7	8	1.1	2.2	4.4	7.5	NW.
Fall mean.....	52	63		41				7.9	25	5.1	8.7	4.6		NW.
Annual mean.....	50	60	108	39	-25			33.2	100	24.0	49.0	32.5	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 11-15, 21-23; July 1, 12, 15-18, 24, 26, 27, 31; Aug. 1, 7-9; Sept. 1.	1898	Feb. 1, 3.....	July 19, 24.
1895	Jan. 11, 12, 27, 28, 30; Feb. 1, 2, 4, 5, 7-9, 11.	June 9, 10, 25; July 7, 14, 16; Aug. 9.	1899	Jan. 29-31; Feb. 7-13..	July 26; Aug. 3, 11, 27-29; Sept. 2, 5-7.
1896	None.	July 14; Aug. 4, 5, 8, 9.	1900	None.....	July 2; Aug. 2-11, 18.
1897	Jan. 24-26; Dec. 18....	June 13, 14, 17; July 3, 4, 8-10; Aug. 1-3, 28; Sept. 8-10, 12, 13.	1901	Dec. 14, 15, 18-20.....	June 25, 28, 30; July 1, 4, 9-16, 18-26; Sept. 7.
			1902	Jan. 27, 28; Feb. 3-5..	None.
			1903	Feb. 17, 18; Dec. 13, 26.	July 9, 10; Aug. 24.

ILLINOIS.

Northern District: LASALLE COUNTY. Station: OTTAWA

J. O. HARRIS, Observer.

[Established by Signal Service in September, 1887. Latitude, 41° 20' N. Longitude, 88° 52' W. Elevation, 500 feet.]

This station is near the eastern limits of the city of Ottawa, a town in the Illinois River valley.

The maximum and minimum thermometers are exposed in a standard instrument shelter located north of the house. This shelter was installed in November, 1902. Prior to that time a frame with roof and east and west sides, front open, was used. The thermometers are 4 feet above sod.

The rain gage is of standard pattern and is exposed in the open. Its top is 2 feet above sod.

The temperature means were obtained from the daily extremes.

Tabulated data are for the period of observation, September 1, 1887, to December 31, 1903. The record from August 1, 1890, to December 31, 1902, is missing. Monthly mean precipitation, beginning with the year 1856, is for varying periods of twenty-seven to thirty years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	37	64	21	-14	42	23	2.2	8	2.1	2.1	4.3	10.0	NW.
January.....	24	33	64	15	-26	32	12	2.2	8	1.8	5.8	8.0	14.0	NW.
February.....	23	33	65	13	-24	34	15	2.1	8	2.1	1.3	9.3	11.0	NW.
Winter mean.....	25	34		16				6.5	24	6.0	9.2	21.6		NW.
March.....	36	47	83	28	-2	45	29	2.9	11	3.5	4.2	4.6	11.0	NW.
April.....	51	64	92	40	12	57	46	2.7	9	0.6	4.8	0.5	2.2	NE.
May.....	62	74	99	51	29	69	56	4.0	12	2.2	3.6	T.	T.	SW.
Spring mean.....	50	62		40				9.6	32	6.3	12.6	5.1		NE.
June.....	71	84	103	60	37	76	67	3.6	11	2.7	5.6	0.0	0.0	SW.
July.....	76	89	112	64	42	83	73	4.0	8	5.5	8.9	0.0	0.0	SW.
August.....	73	86	103	63	42	80	67	3.1	7	0.8	6.8	0.0	0.0	SW.
Summer mean.....	73	86		62				10.7	26	9.0	21.3	0.0		SW.
September.....	65	78	102	54	26	70	57	3.6	9	3.2	7.6	0.0	0.0	SW.
October.....	53	65	90	42	13	63	46	3.8	7	0.9	2.5	T.	T.	SW.
November.....	39	48	76	30	-4	49	34	2.5	9	1.5	2.5	2.9	9.0	NW.
Fall mean.....	52	64		42				9.9	25	5.6	12.6	2.9		SW.
Annual mean.....	50	62	112	39	-26			36.7	107	26.9	55.7	29.6	14.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	Jan. 25, 26.....	June 10-16, 20-22, 27; July 10-12, 15-19, 24, 26, 27, 29-31; Aug. 1, 8, 9, 29; Sept. 1, 2.	1898	None.....	July 1, 2, 15, 18, 19, 23, 24, 27, 28; Aug. 23.
1895	Jan. 27, 28, 30, 31; Feb. 2-6, 8-13.	May 9, 29, 31; June 2, 3, 8-11, 16, 17, 21, 24, 25; July 5-7, 13, 14, 16; Aug. 9, 10, 13-17; Sept. 10, 11.	1899	Jan. 29, 31; Feb. 8-12.	June 19, 22; July 2, 12, 22, 23, 26; Aug. 3, 11, 18, 19, 23, 27, 28, 31; Sept. 1, 2, 5-7.
1896	None.....	July 3, 12-14, 26, 29; Aug. 4-6, 8-11.	1900	None.....	July 3-6, 14, 15, 31; Aug. 3-11, 18-20.
1897	Jan. 24-26.....	June 13-15, 17; July 3, 4, 7-10, 30, 31; Aug. 1; Sept. 5, 7-10, 12-15.	1901	Feb. 10; Dec. 15.....	June 12, 16, 23-25, 27-30; July 1-5, 9-28; Aug. 13-15; Sept. 7.
			1902	Jan. 27, 28.....	July 17.
			1903	Feb. 17; Dec. 13.....	July 1, 3, 8, 9, 24, 25, 28; Aug. 24.

ILLINOIS.

Central District: PEORIA COUNTY. Station: PEORIA.

FRED BRENDL, Observer.

[Established December, 1855. Latitude, 40° 43' N. Longitude, 89° 43' W. Elevation, 510 feet.]

This station is located in the southern portion of Peoria County, close to the Illinois River. The ground rises in parallel terraces, with northeast to southwest trend from the river, and the station is situated on the first terrace.

The maximum and minimum thermometers have been exposed since October, 1896, in a standard instrument shelter north of the observer's house. The shelter opens toward the north, and the thermometers are 7 feet above the ground.

The rain gage is 36 feet north of the house, in an open yard clear of trees. Its top is 3 feet above sod.

From December, 1855, to December, 1893, inclusive, monthly mean temperatures were determined from tridaily observed readings at 7 a. m., 2 p. m., and 9 p. m.; from January, 1894, to November, 1903, inclusive, from the daily maximum and minimum temperatures. The record of sunshine for the period December, 1857, to November, 1868 is obtained from eye observations. The mean humidity of the atmosphere is tabulated from the period December, 1855, to November, 1885.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Mean humidity.		Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Relative, 8 p. m.	Average hours.	Percentage of possible.	
December.....	50	36	67	24	-22	44	19	2.2	9	3.8	1.5	81	78	129	45	W.
January.....	25	35	67	21	-27	41	13	1.8	6	0.8	1.5	87	79	133	46	W.
February.....	29	33	70	18	-22	39	16	2.1	7	1.0	1.9	84	78	149	51	W.
Winter mean.....	28	35	.....	21	.....	.....	.....	6.1	22	5.6	4.9	85	78	137	48	W.
March.....	39	48	86	32	-6	50	29	2.7	9	0.2	3.3	80	75	182	50	W.
April.....	53	64	92	44	17	61	40	3.1	9	0.9	6.2	74	69	192	51	W.
May.....	64	77	98	54	30	72	55	3.8	10	4.1	10.6	73	69	260	61	W.
Spring mean.....	52	63	.....	43	.....	.....	.....	9.6	28	5.2	20.1	76	71	214	53	W.
June.....	74	85	101	63	35	80	70	3.8	10	1.5	6.0	76	72	316	71	W.
July.....	78	90	106	66	48	83	71	3.9	8	2.8	5.8	77	74	314	69	W.
August.....	75	84	104	64	41	81	70	3.1	7	1.4	3.2	80	75	299	71	S.
Summer mean.....	76	86	.....	64	.....	.....	.....	10.8	25	5.7	15.0	78	74	310	70	W.
September.....	67	79	104	57	26	73	59	3.6	8	0.8	3.2	82	75	216	58	S.
October.....	54	67	90	46	14	63	45	2.2	7	1.6	3.2	82	74	202	59	W.
November.....	40	50	80	33	-1	51	30	2.4	7	4.0	4.8	80	74	148	51	W.
Fall mean.....	54	65	.....	45	.....	.....	.....	8.2	22	6.4	11.2	81	74	189	56	W.
Annual mean.....	52	62	106	44	-27	.....	.....	34.7	97	22.9	51.2	80	74	213	58	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Dec. 28....	June 3, 10-15, 21, 22, 29; July 1, 10-12, 15-18, 24, 26, 27; Aug. 8-10.	1899	Jan. 27, 29-31; Feb. 4, 7-13; Dec. 30, 31.	July 2, 12, 21-23, 26; Aug. 3, 11, 18, 19, 26-28.
1895	Jan. 11, 12, 14, 27, 28, 30; Feb. 1-5, 7-9, 11.	June 1-3, 9-11, 24, 25; July 7, 14, 16; Aug. 9, 10, 14-17.	1900	Jan. 31; Feb. 17.....	July 2-7, 14, 15, 31; Aug. 2-10, 12.
1896	Jan. 3, 4; Feb. 20, 21.	June 19, 20; July 12-14, 26, 29, 30; Aug. 4-6, 8-11.	1901	Feb. 5, 6, 10; Dec. 14, 15, 19, 20.	June 16, 24, 25, 28, 30; July 1, 4, 10-12, 14, 16, 19-27; Aug. 9.
1897	Jan. 24-29; Feb. 27; Dec. 18.	June 15, 14, 16, 17; July 3, 4, 6-10, 31; Aug. 1-3, 28.	1902	Jan. 27, 28; Feb. 2-5, 8, 9; Dec. 8.	June 12; July 17.
1898	Feb. 1, 2; Dec. 31.....	June 30; July 1, 2, 19, 23, 24, 27; Aug. 22, 23.	1903	Jan. 12; Feb. 17-19; Dec. 13, 14, 26.	June 30; July 1, 8-10, 25, 26, 28; Aug. 4, 23, 24.

ILLINOIS.

Central District: McLEAN COUNTY. Station: BLOOMINGTON.

H. N. PEARCE, Observer.

[Established by United States Weather Bureau in January, 1893. Latitude, 40° 29' N. Longitude, 89° W. Elevation, 840 feet.]

Bloomington is situated on the rolling prairie of central Illinois at about the highest point between Lake Michigan and the Mississippi River.

The thermometers of the station are located in a back yard in the residence section of the city, and are inclosed in a regulation Weather Bureau shelter 4 feet above the ground. No shade falls upon it except for a little while in the morning, and it is not near enough to any building to receive reflected heat.

The rain gage is on the ground some distance from the shelter, and 25 feet from a low coal shed on the west, and at an equal distance from a low summer kitchen in the rear of a two-story house on the east.

The mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	29	37	65	20	-13	35	23	2.4	8	3.1	2.2	3.7	7.2	SW.
January.....	25	34	65	16	-24	31	13	2.0	8	1.7	0.9	6.6	8.5	W.
February.....	24	34	67	15	-24	30	19	2.4	7	1.8	1.8	8.7	20.0	W.
Winter mean.....	26	35	.....	17	.....	.....	.....	6.8	23	6.6	4.9	19.0	.....	W.
March.....	39	49	85	29	-1	46	33	3.6	9	4.0	4.4	4.1	8.0	NW.
April.....	53	65	95	40	15	60	46	3.1	11	0.9	2.4	1.6	7.3	NW.
May.....	64	78	98	50	26	70	59	4.1	11	2.1	2.1	0.0	0.0	SW.
Spring mean.....	52	64	.....	41	.....	.....	.....	10.8	26	7.0	8.9	5.7	.....	NW.
June.....	72	87	103	58	31	75	67	3.9	10	4.8	12.4	0.0	0.0	S.
July.....	76	91	108	62	41	82	73	4.0	7	2.0	8.0	0.0	0.0	S.W.
August.....	73	88	104	58	37	77	70	2.5	6	1.1	5.8	0.0	0.0	SW.
Summer mean.....	74	88	.....	59	.....	.....	.....	10.4	23	7.9	26.2	0.0	.....	SW.
September.....	68	82	103	54	22	71	63	3.6	8	1.9	4.9	0.0	0.0	S.
October.....	57	70	93	43	16	63	48	1.8	5	2.1	2.7	0.1	0.8	S.
November.....	40	50	78	30	-1	49	35	2.7	8	1.1	2.8	2.7	7.5	NW.
Fall mean.....	55	67	.....	43	.....	.....	.....	8.1	21	5.1	10.4	2.8	.....	S.
Annual mean.....	52	64	108	39	-24	.....	.....	36.1	93	26.6	50.4	27.5	20.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 23-25; Feb. 19-21, 23; Dec. 27, 28.	June 10-16, 20, 21, 29; July 13, 15-19, 24-27, 29; Aug. 1, 4-8, 15, 18, 21; Sept. 1, 2.	1900	Jan. 29, 31; Feb. 1, 16, 17, 24, 25; Mar. 17.	July 3; Sept. 7, 10; August missing.
1895	Jan. 11-14, 21, 24, 27, 28, 30, 31; Feb. 1-12; Dec. 4, 5.	May 9, 29-31; June 1-3, 8-16, 22, 24, 27; July 7, 13, 16, 18; Aug. 9, 10, 13, 27; Sept. 10, 12, 17.	1901	Jan. 1; Feb. 5, 6, 10; Dec. 14-16, 18-21.	June 11, 12, 14, 16, 24, 25, 30; July 1, 2, 4, 5, 10-28; Aug. 2, 9, 12-15; Sept. 4, 6, 7.
1896	Jan. 3-5; Feb. 19, 20.	June 6.	1902	Jan. 27, 28; Feb. 2-5, 7-9; Dec. 8, 26.	June 12.
1897	Jan. 24-30; Feb. 27; Dec. 18, 19, 24.	June 13, 14, 16; July 3, 4, 6-10, 23, 24, 31; Aug. 1-3, 28; Sept. 7-15.	1903	Jan. 10-13; Feb. 17-19; Dec. 13-15, 26, 30.	July 1-3, 8-10, 26, 28; Aug. 4, 23-25.
1898	Feb. 1, 3; Nov. 26.	June 3-6, 14, 29, 30; July 1, 2, 6, 15, 16, 19, 23-25; Aug. 21-23, 29-31; Sept. 1, 2.			
1899	Jan. 29-31; Feb. 1, 7-13; Mar. 7; Dec. 30, 31.	Apr. 29; June 19; July 2, 12, 21, 23, 26; Aug. 2, 3, 8, 11, 12, 18-20, 23, 25-31; Sept. 1-7.			

ILLINOIS.

Central District: PIKE COUNTY. Station: GRIGGSVILLE.

EMILY R. GRAY, Observer.

[Established by Signal Service in January, 1888. Latitude, 39° 44' N. Longitude, 90° 44' W. Elevation, 650 feet.]

This station is situated in the western portion of the central district on the Illinois River. The general contour of the surrounding country is rolling prairie.

The instruments are exposed in a screen shelter of home manufacture to the north of the observer's house. The shelter is 5 feet above the sod. The thermometers, consisting of maximum and minimum, are of standard Weather Bureau pattern.

The rain gage is 6 feet from the screen shelter and has a good exposure, its top being 3 feet above sod.

Tabulated data cover the period January 1, 1888, to December 31, 1903. The record for the years 1891 and 1892 is missing. The record of snowfall is incomplete and fragmentary. The temperature means from 1888 to 1891 were obtained from tridaily observations; from 1893 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	32	40	68	24	-16	41	27	1.8	4	1.3	1.0	0.9	3.0	NW.
January.....	28	37	73	20	-20	32	17	2.3	5	2.1	4.5	5.0	9.8	NW.
February.....	27	35	68	18	-22	34	20	2.2	6	2.4	2.2	7.1	15.0	NW.
Winter mean.....	29	37	.....	21	.....	.....	.....	6.3	15	5.8	7.7	13.0	.....	NW.
March.....	40	50	85	31	-2	47	34	3.2	7	2.2	5.8	2.7	6.0	NW.
April.....	55	65	92	44	12	62	51	3.3	7	2.8	5.0	0.5	2.0	SE.
May.....	65	76	95	54	32	71	61	5.3	9	2.3	8.3	T.	T.	SE.
Spring mean.....	53	64	.....	43	.....	.....	.....	11.8	23	7.3	19.1	3.2	.....	SE.
June.....	73	84	101	64	39	77	69	4.5	8	3.0	4.9	0.0	0.0	SE.
July.....	77	88	110	68	50	84	74	3.7	6	0.8	3.6	0.0	0.0	SE.
August.....	75	86	102	65	48	83	71	2.7	5	1.2	4.5	0.0	0.0	SE.
Summer mean.....	75	86	.....	66	.....	.....	.....	10.9	19	5.0	13.0	0.0	.....	SE.
September.....	68	80	103	57	29	74	62	4.0	7	2.8	6.8	0.0	0.0	SE.
October.....	57	68	94	46	20	63	50	1.9	4	0.8	3.0	T.	T.	SE.
November.....	42	52	80	32	2	50	37	2.1	5	1.5	3.7	1.4	8.4	NW.
Fall mean.....	56	67	.....	45	.....	.....	.....	8.0	16	5.1	13.5	1.4	.....	SE.
Annual mean.....	53	63	110	44	-22	.....	.....	37.0	73	23.2	53.3	17.6	15.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24-26; Dec. 28, 29.	May 16; June 14, 15, 20-24, 29; July 10-12, 15-19, 23-30; Aug. 7-12, 14, 30; Sept. 1, 9.	1900	Jan. 31; Feb. 17.....	July 2-4, 6, 7; Aug. 1-12, 17-21, 23; Sept. 9.
1895	Jan. 11, 12, 27, 28, 30, 31; Feb. 1, 2, 4-9, 11; Dec. 3.	June 3, 25; July 16; Aug. 15, 17; Sept. 17, 18.	1901	Jan. 1; Feb. 5; Dec. 14-16, 18-21.	June 21-30; July 1, 2, 4-6, 9-27; Aug. 2, 7-9, 13, 14; Sept. 7, 9.
1896	Jan. 4; Feb. 20, 21....	July 5, 14, 27, 29; Aug. 4-8; Sept. 10.	1902	Jan. 27, 28; Feb. 2-5; Dec. 25.	July 17.
1897	Jan. 24-28; Dec. 18....	June 14, 17, 18; July 7-10, 23, 30, 31; Aug. 1-3, 25, 27; Sept. 1, 8-13, 15, 26.	1903	Jan. 12; Feb. 16-19; Dec. 13, 26.	July 8-11, 25-28; Aug. 3-5, 23, 24.
1898	Feb. 3; Dec. 9, 14, 31..	July 24, 25; Aug. 23, 29-31; Sept. 2, 3.			
1899	Jan. 1, 29-31; Feb. 1, 4, 7-13; Mar. 7; Dec. 31.	July 26; Aug. 2-4, 11; Sept. 2-7.			

ILLINOIS.

Central District: SANGAMON COUNTY. Station: SPRINGFIELD.

WM. G. BURNS, Section Director.

[Established by Signal Service in June, 1879. Latitude, 39° 48' N. Longitude, 89° 39' W. Elevation, 606 feet.]

The station is located in the Federal Building, near the center of the city. It was established June 28, 1879, in the Springer Building, on the corner diagonal from the present site. The office was removed to its present location July 28, 1879.

The thermometers are exposed in a standard roof shelter, 82 feet above ground.

The rain gage is near the center of the roof, and there are no surroundings to produce wind eddies.

Springfield is situated in the lower portion of the upper Mississippi Valley, about 20 miles southwest of the geographical center of the State. The topography of the surrounding country is undiversified, being an almost level prairie. The Sangamon River, a small unnavigable stream, about 4 miles distant, traverses the country to the east and north.

Tabulated data are for the following periods of observation: Depth of snowfall, twenty years; humidity, fifteen years; sunshine, two years. Remainder of data is from the full period of observation, twenty-four and one-half years, July 1, 1879, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	32	39	67	25	-14	44	25	2.4	10	3.4	3.2	2.7	3.8	79	1.46	74	1.09	S. NW.
January.....	27	35	68	19	-22	44	17	2.2	9	1.1	2.5	6.7	8.5	81	1.20	73	1.35	
February.....	29	37	72	21	-21	43	19	3.0	10	4.3	7.9	5.9	15.0	80	1.19	73	1.48	
Winter mean.....	29	37	.....	21	.....	.....	.....	7.6	29	8.8	13.6	15.3	.....	80	1.28	73	1.50	NW.
March.....	40	48	84	31	2	47	34	3.0	11	1.4	4.9	2.9	3.1	78	1.78	68	2.01	S. NW.
April.....	53	63	88	44	19	60	41	3.3	11	2.9	3.8	0.5	3.8	74	2.62	60	2.91	
May.....	63	73	92	54	34	70	58	4.7	12	1.9	10.6	0.0	0.0	76	4.08	62	4.49	
Spring mean.....	52	61	.....	43	.....	.....	.....	11.0	34	6.2	19.3	3.4	.....	76	2.83	63	3.14	S.
June.....	72	82	98	63	41	76	67	4.5	12	3.1	12.7	0.0	0.0	77	5.47	62	5.80	S. SW.
July.....	76	86	107	67	49	83	71	2.8	8	1.0	1.9	0.0	0.0	75	6.18	57	6.23	
August.....	74	84	100	64	48	80	71	2.7	8	1.0	3.1	0.0	0.0	79	5.72	60	6.17	
Summer mean.....	74	84	.....	65	.....	.....	.....	10.0	28	5.1	17.7	0.0	.....	77	5.79	60	6.07	S.
September.....	67	77	99	57	31	73	62	3.3	9	2.9	1.2	0.0	0.0	80	4.60	62	4.95	S.
October.....	56	66	91	46	20	63	50	2.7	8	0.8	3.8	T.	T.	79	3.00	57	2.96	
November.....	42	50	77	33	2	49	32	2.8	11	1.4	2.6	1.3	4.8	79	1.94	69	2.11	
Fall mean.....	55	64	.....	45	.....	.....	.....	8.8	26	5.1	7.6	1.3	.....	79	3.18	63	3.34	S.
Annual mean.....	52	62	107	44	-22	.....	.....	37.4	117	25.2	58.2	20.0	15.0	78	3.27	65	3.51	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24-26; Dec. 28....	June 14, 15, 29; July 24, 26; Aug. 9-11, 14.	1900	Jan. 31; Feb. 17, 25....	Aug. 3, 17-21.
1895	Jan. 11, 12, 27, 30; Feb. 1, 2, 4, 5, 7-9.	June 3.	1901	Dec. 14-16, 18-21.....	June 16, 21, 25, 30; July 1, 2, 4, 5, 10, 11, 16-28; Aug. 2, 8, 9.
1896	Jan. 3, 4; Feb. 20.....	July 29; Aug. 5, 6, 8.	1902	Jan. 27, 28; Feb. 2-5, 9; Dec. 26.	None.
1897	Jan. 24-28.....	June 17; July 7-10, 23; Aug. 2, 3; Sept. 11, 12, 15.	1903	Jan. 12, 13; Dec. 13, 26.	July 8-10.
1898	Feb. 3.....	July 23-25.			
1899	Jan. 29-31; Feb. 1, 8-13; Dec. 31.	July 26; Aug. 2-4, 11; Sept. 5-7.			

ILLINOIS.

Central District: CHAMPAIGN COUNTY. Station: PHILO.

H. A. BURE, Observer.

[Established in 1887 by the Secretary of Agriculture. Latitude, 39° 58' N. Longitude, 88° 7' W. Elevation, 650 feet.]

The station is situated in the open country, 5 miles southeast of the town of Philo. One mile north of the station is a ridge of rolling land, extending east and west, which is about 150 feet higher than the station level. On perfectly still nights there is a difference of 10 degrees in temperature, being lowest at station and highest on the hills.

The maximum and minimum thermometers are exposed in a shelter 20 feet north of a 1½-story house. The shelter was furnished by the Signal Service, and is latticed on all sides, with double roof 2½ by 3 feet at base and 2 feet high. The rain gage is 150 feet northeast of the shelter and 100 feet from any building or tree. Top of the gage is 4½ feet above the ground.

The temperature means from 1888 to 1892 were obtained from tridaily observations; from 1893 to 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	29	37	63	22	-14	34	23	2.4	6	5.0	2.2	3.2	6.0	NW.
January.....	25	34	64	18	-25	32	13	1.9	5	1.1	3.6	5.4	6.0	NW.
February.....	25	34	67	16	-21	31	17	2.4	6	1.3	1.3	5.2	7 0	NW.
Winter mean.....	26	35		19				6.7	17	7.4	7.1	13.8		NW.
March.....	30	48	84	30	- 1	45	34	3.0	7	1.1	8.7	1.7	4.0	NW.
April.....	51	63	90	40	17	58	40	3.0	7	3.4	2.8	0.2	2.0	SE.
May.....	62	74	97	50	24	69	57	3.7	8	0.8	4.9	0.0	0.0	SW.
Spring mean.....	51	62		40				9.7	22	5.3	16.4	1.9		NW.
June.....	71	84	100	59	31	74	65	4.2	8	2.7	3.8	0.0	0.0	SE.
July.....	75	88	104	62	44	80	72	4.2	5	3.0	2.0	0.0	0.0	SW.
August.....	73	86	101	60	38	78	70	2.9	5	1.3	2.3	0.0	0.0	SW.
Summer mean.....	73	86		60				11.3	18	7.0	8.1	0.0		SW.
September.....	66	80	101	52	17	70	62	2.8	6	3.7	5.2	0.0	0.0	SW.
October.....	54	67	95	41	12	61	47	2.4	5	0.8	5.6	T.	T.	NW.
November.....	40	50	76	30	0	48	36	3.1	7	3.2	3.2	2.3	8.0	NW.
Fall mean.....	53	66		41				8.3	18	7.7	14.0	2.3		NW.
Annual mean.....	51	62	104	40	-25			36.0	75	27.5	45.6	18.0	8.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24-26; Feb. 16; Dec. 28.	June 10-15, 27, 29, 30; July 11, 15, 16, 18, 24, 26, 27; Aug. 8-12.	1900	Jan. 29, 31; Feb. 1, 17, 24, 25; Mar. 17.	Aug. 3, 9, 18, 21.
1895	Jan. 11, 12, 14, 27, 28, 30, 31; Feb. 2-5, 7-10, 13, 14; Dec. 31.	May 29-31; June 1-3, 9-11, 25; July 7, 16; Aug. 9, 15-17, 27; Sept. 10, 18.	1901	Jan. 1, 2; Feb. 6; Dec. 14-21.	June 25, 28, 30; July 1, 2, 4, 10, 11, 15-17, 20-28; 30, Aug. 2, 8, 9, 14.
1896	Jan. 1, 4, 5; Feb. 20, 21.	May 12; June 6; July 23-30; Aug. 4-6, 8, 9.	1902	Jan. 27, 28; Feb. 1-5, 7-9, 13, 15, 18-20.	June 15.
1897	Jan. 24-31; Feb. 27...	July 7-10, 31; Aug. 1-3; Sept. 7-15, 26.	1903	Jan. 10-13; Feb. 17-19, 22; Dec. 13-15, 26.	July 9; Aug. 24.
1898	Feb. 23; Nov. 27; Dec. 14.	July 19, 22, 24; Aug. 22, 23, 29; Sept. 2, 3.			
1899	Jan. 29-31; Feb. 1, 7-13; Mar. 6, 7; Dec. 30, 31.	July 12; Aug. 2-4; 11, 19, 27; Sept. 1-7.			

ILLINOIS.

Southern District: BOND COUNTY. Station: GREENVILLE.

M. S. OUDYN, Observer.

[Established by the Signal Service in 1887. Latitude, 38° 53' N. Longitude, 89° 28' W. Elevation, 635 feet.]

The station is located in the city of Greenville, which is situated in the northwestern portion of the southern district. The general contour of the surrounding country is hilly.

The maximum and minimum thermometers are exposed in a standard Weather Bureau instrument shelter, located north of the observer's house. They are 5 feet above sod. The rain gage, Weather Bureau standard, is exposed in an open yard, its top being 3 feet above sod.

Tabulated data are for the period of observation September 1, 1887, to December 31, 1903.

Temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	42	71	25	-16	48	27	2.7	3	3.7	1.5	3.4	7.0	NW.
January.....	30	39	73	21	-13	38	18	2.7	11	1.4	4.0	4.0	7.5	NW.
February.....	30	40	75	22	-21	30	18	3.3	9	2.0	4.2	5.3	5.8	NW.
Winter mean.....	31	40	.....	22	.....	.....	.....	8.7	25	7.1	9.7	12.7	.....	NW.
March.....	42	52	85	32	-2	49	37	3.8	10	3.3	9.7	3.3	8.4	NW.
April.....	56	67	92	44	23	62	52	3.8	11	2.9	3.6	0.3	2.5	SE.
May.....	65	77	95	53	30	72	61	4.5	10	2.0	6.5	0.0	0.0	SE.
Spring mean.....	54	65	.....	43	.....	.....	.....	12.1	31	8.2	19.8	3.6	.....	SE.
June.....	74	85	102	61	36	78	68	4.4	10	2.2	4.3	0.0	0.0	SW.
July.....	78	90	113	66	40	80	73	3.1	8	1.7	4.4	0.0	0.0	SW.
August.....	76	89	106	64	45	82	73	2.6	7	4.4	2.6	0.0	0.0	SW.
Summer mean.....	76	88	.....	64	.....	.....	.....	10.1	25	8.3	11.3	0.0	.....	SW.
September.....	69	83	102	56	30	74	64	2.8	7	1.2	3.8	0.0	0.0	SE.
October.....	57	70	95	44	19	65	52	2.0	6	2.4	5.6	0.0	0.0	NW.
November.....	43	53	79	33	5	51	39	3.8	8	1.2	2.3	1.6	5.7	NW.
Fall mean.....	56	68	.....	44	.....	.....	.....	8.6	21	4.8	11.7	1.6	.....	NW.
Annual mean.....	54	66	113	44	-21	.....	.....	39.5	102	28.4	52.5	17.9	8.4	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Dec. 28...	June 3, 10-16, 19, 22-24, 27-30; July 1-3, 10-13, 15, 17, 24-27, 30, 31; Aug. 1, 7-15, 18, 21, 22, 29-31; Sept. 1.	1899	Jan. 29-31; Feb. 1, 8-13; Mar. 7; Dec. 30, 31.	June 4, 5, 19, 21, 22; July 2, 3, 12-15, 26, 27, 29; Aug. 2-4, 11, 26; Sept. 2-7.
1895	Jan. 11, 12, 27, 30; Feb. 1, 2, 4, 5, 7-9.	May 9; June 1-3, 9-11, 13, 14, 23, 25; July 14, 16, 18, 20-22; Aug. 9-17, 27-29; Sept. 3, 10-12, 15, 17-21.	1900	Jan. 31; Feb. 17.....	Aug. 1-6, 8-12, 17-21, 23, 30, 31; Sept. 6, 9, 10.
1896	None.....	May 10; June 20; July 12-14, 26-31; Aug. 1, 3-11, 15, 21, 22; Sept. 2, 10-13, 14.	1901	Dec. 14-16, 18-21.....	June 11, 16, 21-30; July 1-6, 9-23, 30, Aug. 2, 3, 7-10, 12-15, 30; Sept. 6-9, 23.
1897	Jan. 24-28.....	June 11-19; July 3, 4, 6-10; 23, 31; Aug. 1-3, 26-28; Sept. 1, 7-15.	1902	Jan. 27; Feb. 3-5, 9...	May 20; June 11-15; July 3, 6-8, 17, 26; 27, 31; Aug. 2, 3, 13.
1898	Feb. 3; Dec. 13, 14....	June 24; July 1, 2, 23, 24, 27; Aug. 23; Sept. 2, 3.	1903	Jan. 12, 13; Feb. 16-19; Dec. 13, 26.	July 4, 7-9, 11, 25-28; Aug. 2-5, 22-25, 27; Sept. 3, 7, 14.

ILLINOIS.

Southern District: RICHLAND COUNTY. Station: OLNEY.

VICTOR E. PHILLIPS, Observer.

[Established by Signal Service January, 1888. Latitude, 38° 44' N. Longitude, 88° 4' W. Elevation, 467 feet.]

The station is located in Olney, a city in the northeastern part of the southern district. The contour of the surrounding country is a gentle slope toward the Fox River.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter, 5 feet above sod. The rain gage of standard make is exposed in the open 50 feet clear of any building. Its top is 3 feet above sod.

Temperature means from 1888 to October, 1896, were obtained from tridaily observations; from November, 1896, to December, 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	36	42	70	29	- 8	48	25	2.8	8	5.2	2.2	4.4	7.1	SW.
January.....	31	39	70	25	-17	40	17	2.6	8	1.0	7.2	5.2	9.3	W.
February.....	32	39	72	25	-20	40	24	2.9	9	2.9	4.5	4.8	9.9	NW.
Winter mean.....	33	40	70	26	-15	42	22	8.3	25	9.1	13.9	14.4	9.0	W.
March.....	43	51	83	36	1	50	37	4.5	10	4.2	7.5	3.6	8.0	NW.
April.....	55	65	89	48	23	64	50	3.9	9	2.6	4.7	0.4	6.0	SE.
May.....	64	75	96	58	30	72	59	3.7	9	3.1	6.0	0.0	6.0	SW.
Spring mean.....	54	64	91	47	24	62	52	12.1	28	9.9	18.2	4.0	6.0	SW.
June.....	74	85	101	67	35	78	69	3.7	9	2.6	5.9	0.0	0.0	SW.
July.....	78	88	105	70	50	85	73	3.7	7	0.2	1.4	0.0	0.0	SW.
August.....	75	87	103	67	48	82	69	2.8	7	2.4	4.4	0.0	0.0	SW.
Summer mean.....	76	87	103	68	44	81	70	10.2	23	5.2	11.7	0.0	0.0	SW.
September.....	68	81	101	61	27	74	55	2.5	6	1.1	5.8	0.0	0.0	SW.
October.....	56	68	94	48	21	64	51	1.8	6	2.5	1.4	T.	T.	SW.
November.....	43	52	78	36	7	52	35	3.9	8	1.3	2.5	0.9	6.0	NW.
Fall mean.....	56	67	91	48	18	63	47	8.2	20	4.9	9.7	0.9	6.0	SW.
Annual mean.....	55	64	100	47	-20	68	52	38.8	90	29.1	53.5	19.3	9.9	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894 TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 12, 14, 15, 20-22, 27-29; July 11, 13, 25, 26; Aug. 8-11, 14, 18.	1899	Jan. 29, 31; Feb. 1, 8-13; Dec. 30, 31.	June 4, 5, 23; July 13, 28; Aug. 1-3, 12, 24, 26; Sept. 2-7.
1895	Jan. 12, 14; Feb. 2, 4, 5, 7-10.	June 3, 11; Aug. 16, 17, 28; Sept. 12, 18, 22.	1900	Feb. 17.....	July 3, 4, 14; Aug. 4, 7, 9-11, 17-21; Sept. 6, 8.
1896	None.....	July 14, 28-30; Aug. 1, 5-11, 14, 15, 22; Sept. 11, 12, 14.	1901	Dec. 15, 16, 19-21.....	June 16, 22-25, 28-30; July 1-4, 10-12, 15-30; Aug. 2, 8, 9; Sept. 9.
1897	Jan. 24-26, 28.....	June 14, 17, 29, 30; July 3, 4, 6-10, 31; Aug. 1-3, 28, 29; Sept. 1, 7-16.	1902	Jan. 27; Feb. 3, 5.....	May 20, 22; June 11-13, 15; July 3-9, 15, 17, 20, 27; Aug. 2, 3.
1898	Feb. 3; Dec. 14.....	July 1, 2, 16, 19, 22-24; Aug. 22, 23; Sept. 1-3.	1903	Jan. 12; Feb. 17-19; Dec. 13, 26.	July 4, 7-9, 11, 25-28; Aug. 3, 24, 25.

ILLINOIS.

Southern District: RANDOLPH COUNTY. Station: TILDEN.

JAMES A. CALDWELL, Observer.

[Established by Signal Service September, 1887. Latitude, 38° 12' N. Longitude, 89° 44' W. Elevation, 500 feet.]

The station is about 3½ miles southeast of the village of Tilden, and the surroundings are level prairie lands.

The maximum and minimum thermometers are exposed, 5 feet above the ground, in a regulation Weather Bureau shelter 15 feet west of the observer's house, which is two-stories high.

The rain gage is 60 feet west of the house and 5 feet above ground. It is in an open yard, with two large cedar trees 45 feet east of it.

Monthly mean temperatures were obtained from tridaily readings for the period September, 1887, to January, 1892, inclusive, after that time from the daily extremes.

Tabulated data covers the period of observation September 1, 1887, to December 31, 1903. All data for April, 1889, and February to December, 1892, are missing.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	36	43	72	28	-17	48	28	2.5	8	3.6	2.0	2.9	6.0	NW.
January.....	32	40	74	25	-8	40	24	2.2	8	1.0	3.8	3.4	10.0	NW.
February.....	32	41	78	24	-23	39	22	2.5	8	2.0	* 1.9	3.6	3.0	NW.
Winter mean.....	33	41	.....	26	.....	.....	.....	1.2	24	6.6	7.7	9.9	.....	NW.
March.....	44	54	82	35	1	51	52	4.2	11	3.0	10.0	3.7	18.0	NW.
April.....	56	67	89	45	22	64	52	3.3	10	2.1	3.4	0.3	2.5	NW.
May.....	65	76	93	55	28	71	61	3.7	10	2.3	5.9	0.0	0.0	S.
Spring mean.....	55	66	.....	45	.....	.....	.....	11.2	31	7.4	19.3	4.0	.....	NW.
June.....	74	84	104	64	41	78	68	3.9	8	1.4	5.1	0.0	0.0	SW.
July.....	77	88	111	67	51	84	73	3.0	8	1.3	6.9	0.0	0.0	SW.
August.....	76	87	107	65	48	81	73	3.3	8	1.0	4.8	0.0	0.0	SW.
Summer mean.....	76	86	.....	65	.....	.....	.....	10.2	25	3.7	16.8	0.0	.....	SW.
September.....	69	81	105	59	22	74	64	2.6	7	2.4	4.8	0.0	0.0	S.
October.....	58	69	94	45	20	64	53	2.5	6	2.3	6.4	T.	T.	NW.
November.....	44	54	80	35	9	52	41	3.4	8	2.4	1.9	1.1	7.5	NW.
Fall mean.....	57	68	.....	52	.....	.....	.....	8.5	21	7.1	13.1	1.1	.....	NW.
Annual mean.....	55	65	111	46	-23	.....	.....	37.1	101	24.8	56.9	15.0	18.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 7-9; July 13, 30; Aug. 9-16.	1899	Jan. 29, 31; Feb. 1, 8-13.	June 21; Aug. 2, 3, 11, 12, 24-27; Sept. 2-7.
1895	Jan. 12; Feb. 2, 4, 5, 7-9.	June 3; Aug. 17, 18; Sept. 17, 18.	1900	Feb. 17.....	Aug. 9, 15-21, 23; Sept. 6, 8, 9, 15.
1896	None.....	July 28-30; Aug. 1, 5-9, 11, 12, 15, 22; Sept. 12, 13.	1901	Dec. 14-16, 18-21.....	June 16, 20-30; July 1-3, 10-13, 15-29; Aug. 2, 3, 8-10, 13-15, 25, 30; Sept. 7, 9.
1897	Jan. 26, 28.....	July 7, 9, 10, 23, 31; Aug. 1, 2, 27-29; Sept. 1, 8, 10-12, 14.	1902	Jan. 27; Feb. 2-4.....	June 11-15; July 6, 15-17, 26; Aug. 13, 14.
1898	Dec. 14.....	July 24; Aug. 23; Sept. 2-4, 24.	1903	Feb. 17-19.....	July 7-11; 17, 21, 25-28; Aug. 3-5, 24.

ILLINOIS.

Southern District: ALEXANDER COUNTY. Station: CAIRO.

P. H. SMYTH, Local Forecaster.

[Established by United States Signal Service June, 1871. Latitude, 37° 0' N. Longitude, 89° 10' W. Elevation, 314 feet.]

This station is located near the central portion of the city. The neck of land comprising the city of Cairo is the extreme southern end of the State of Illinois and, peninsula-like, lies between the two great rivers, the Mississippi and the Ohio; the former sweeps around a short distance to the southeast of the city, where the Ohio joins it as it flows to the Gulf.

The thermometers are exposed in a standard shelter on the roof of the United States custom-house. Its elevation above the roof is 11 feet.

The rain gage is exposed on a platform erected on the roof, about 7 feet east of the instrument shelter. The top of the gage is 3.5 feet above the platform and 80 feet above the ground. The snow gage is erected on the same platform with the rain gage, its top being 2.2 feet above platform.

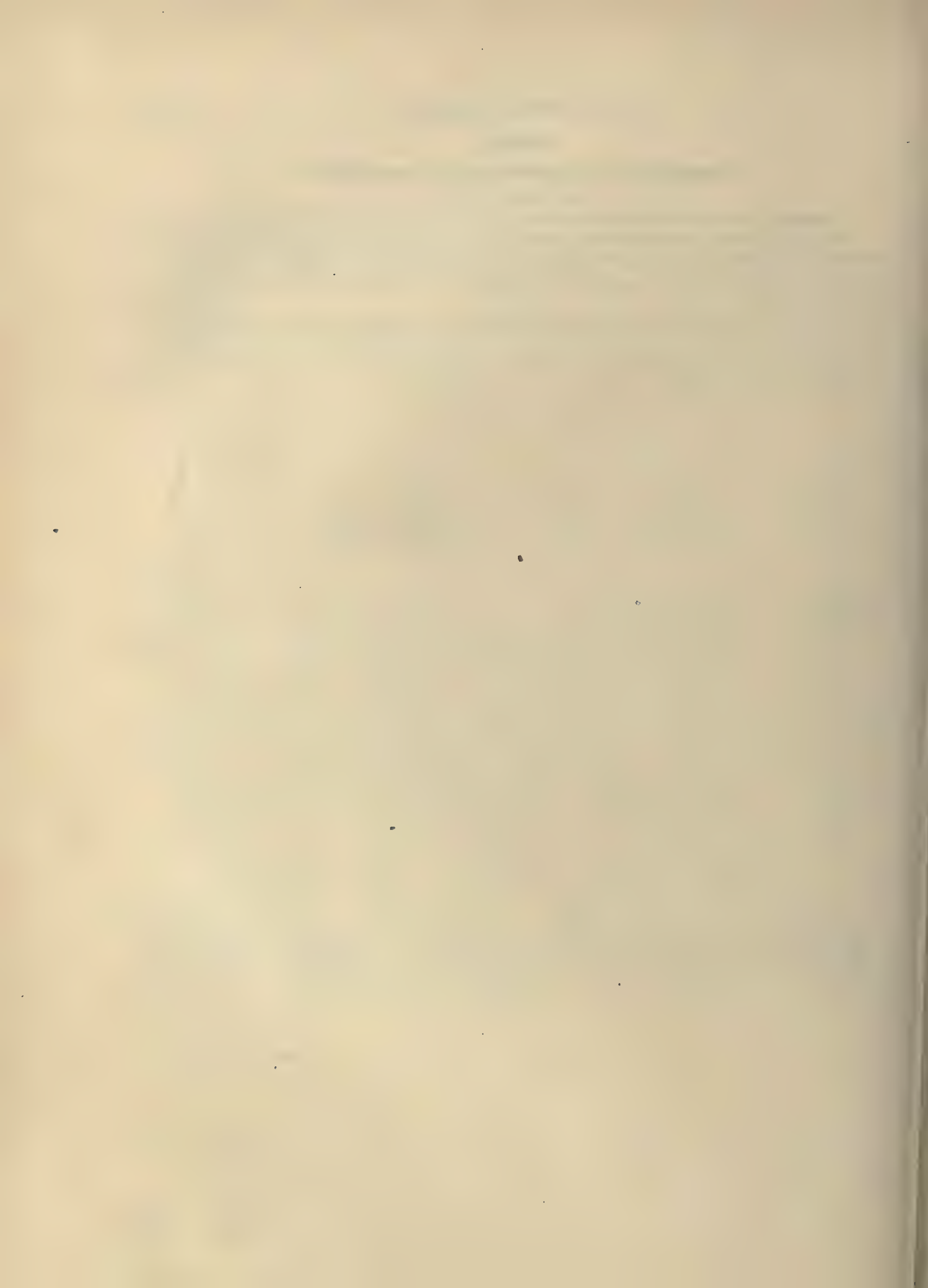
Tabulated data are from the following periods of observation: Humidity, fifteen years. Remainder of data is from the whole period of observation, thirty-two years, June 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	39	46	74	32	- 7	54	26	3.4	11	1.6	2.6	2.2	8.5	81	1.99	71	2.18	S.
January.....	36	43	73	23	-16	51	25	3.7	12	1.4	6.4	4.3	9.9	82	1.73	73	2.00	S.
February.....	38	46	75	31	-14	49	27	3.6	10	2.3	10.1	3.3	6.1	80	1.78	71	2.10	N.
Winter mean.....	38	45	.....	30	.....	.....	.....	10.7	33	5.3	19.1	9.8	.....	81	1.83	72	2.09	S.
March.....	47	55	84	39	6	57	43	3.9	12	2.0	4.2	1.6	7.5	78	2.48	66	2.69	S.
April.....	59	65	89	50	24	66	52	3.6	11	4.5	4.1	T.	0.6	76	3.44	61	3.75	S.
May.....	68	76	92	59	37	73	64	3.9	11	5.0	10.2	0.0	0.0	79	4.85	65	5.36	S.
Spring mean.....	58	65	.....	49	.....	.....	.....	11.4	34	11.5	18.5	1.6	.....	78	3.59	64	3.93	S.
June.....	75	84	98	67	46	80	70	4.4	11	1.8	3.3	0.0	0.0	82	6.54	69	7.09	S.
July.....	79	87	106	71	57	83	75	3.4	9	3.4	5.2	0.0	0.0	81	7.34	69	7.55	S.
August.....	78	83	103	69	52	83	74	2.6	8	0.2	3.5	0.0	0.0	84	7.15	70	7.42	S.
Summer mean.....	77	85	.....	69	.....	.....	.....	10.4	28	5.4	12.0	0.0	.....	82	7.01	69	7.35	S.
September.....	70	79	97	62	36	76	66	2.5	7	2.6	3.3	0.0	0.0	84	5.51	71	7.02	S.
October.....	60	69	90	50	24	66	54	2.6	7	1.2	2.6	0.0	0.0	83	3.63	66	3.92	S.
November.....	47	55	80	39	7	55	37	4.0	9	0.6	6.0	0.7	3.0	80	2.45	68	2.68	S.
Fall mean.....	59	68	.....	50	.....	.....	.....	9.1	23	4.4	11.9	0.7	.....	82	3.86	68	4.54	S.
Annual mean.....	58	66	106	50	-16	.....	.....	41.6	118	26.6	61.3	12.1	9.9	81	4.07	68	4.48	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25.	July 1; Aug. 9, 10, 12-15.	1899	Jan. 31; Feb. 8-13.	Aug. 11, 12, 26; Sept. 3-7.
1895	Jan. 12; Feb. 8, 9.	June 3.	1900	Feb. 17.	Aug. 9, 16, 17, 21; Sept. 8.
1896	None.	July 29, 30; Aug. 1, 5, 6, 8, 14, 15; Sept. 17.	1901	Dec. 14, 15, 20.	June 16, 22, 27-29; July 2-4, 11, 12, 15, 17, 19-24, 28; Aug. 3.
1897	do.	July 2, 3, 8-10, 31; Aug. 1-4, 27-29; Sept. 11, 12.	1902	None.	June 11, 12; July 15-17; Aug. 3.
1898	do.	None.	1903	Feb. 17.	July 11.



INDIANA.

By WILLIAM T. BLYTHE,
Section Director.

INDIANA.

Physical features; area.—The State of Indiana embraces about 36,000 square miles, including about 440 square miles of water surface—small lakes, mostly in the northern counties. The extreme length of the State, north to south, is 276 miles, and its greatest breadth is 145 miles. It has a shore line on Lake Michigan of about 60 miles, and its southern boundary, 352 miles long, is the Ohio River. The Wabash River from about 20 miles below Terre Haute marks about 150 miles of the southern portion of the boundary line between Indiana and Illinois.

The average elevation of the State above sea level is approximately 750 feet. The lowest point is 311 feet at low water at the mouth of the Wabash River, and the highest about 1,250 feet in the southern part of Randolph County. The latter point is in an area having an altitude of about 1,000 feet, which covers Randolph, the south part of Jay and north portion of Wayne counties, and extends southerly in a broad ridge of irregular shape through Henry, Rush, and Decatur counties into Ripley County. A small area embracing parts of the four northeast corner counties, viz, Steuben, Lagrange, Noble, and De Kalb, and also smaller detached areas in Hendricks, Brown, and Washington counties have elevations slightly in excess of 1,000 feet.

In the greater portion of the driftless region of the State extending south from Brown and Monroe counties and widening out along the Ohio River, and also in places bordering on and contiguous to some of the principal streams, the surface is more or less rugged. In several counties in the northwest portion of the State and over a large area in the lower Wabash River bottoms the ground is flat, subject to inundation during prolonged rainy spells, and much of it is marshy at all times. But generally the surface of the ground in Indiana is rolling, with occasional glacial ridges of only moderate elevation, tillable and well drained.

About 4,000 square miles of the northern part of the State drain into the Great Lakes, principally through the St. Joseph River, which emerges from the State in St. Joseph County and empties into Lake Michigan, and the Maumee River, which is formed by the junction of the St. Joseph of the Maumee and St. Marys rivers near Fort Wayne, and flows northeasterly to Lake Erie. The remainder of the State is included in the Mississippi River drainage basin.

The Kankakee River, a tributary of the Illinois River, having its source near South Bend, flows southwestward, draining about 3,200 square miles in St. Joseph, Laporte, Marshall, Starke, Porter, Jasper, Lake, and Newton counties.

The great river of Indiana, however, is the Wabash. Entering the State from Ohio, in Adams County, it flows north-westward into Huntington County and thence southwestward to its confluence with the Ohio River, a total distance within the State of about 500 miles. In its upper reaches the Wabash River is fed by the Salamonie and Mississinewa rivers, which flow into it from the southeast near Huntington and Peru, respectively, and from the north by the Eel River at Logansport and the Tippecanoe River, which empties into it in the northeast corner of Tippecanoe County.

White River, with its east and west forks and their several tributaries, drains an area equal to about one-third of the State, and empties into the Wabash on the border line between Knox and Gibson counties.

White Water River, a stream about 100 miles long, is formed by the union, at Brookville, Franklin County, of two forks that flow south from the highlands on the east border of the State. It emerges from the State in Dearborn County, enters Ohio, and joins the Miami River a few miles above the latter's confluence with the Ohio.

The Patoka River is a stream of about 150 miles in length, flowing westward from its source in Orange County to the Wabash in Gibson County.

Climate.—The following summary of the salient climatic features of the State was determined from the record of observations taken by and in cooperation with the Weather Bureau and its predecessor, the United States Signal Service. They cover periods ranging from five to thirty-three, and in one instance—Vevay station—to sixty-nine years. The greater number of them, however, have lengths ranging from eight to twenty-two years.

All records having a length of ten or more years, of stations in operation December 31, 1903, were used in the determination of section and State annual means, the extremes of temperature, and of the annual average precipitation.

But the section and State mean temperatures and the average precipitation for the seasons, the average time of first killing frost in autumn and last killing frost in spring, and also the average depth of snowfall annually were determined from the records of the 11 selected stations whose data, in tabulated form, is embodied in this publication.

For the reason that the records of fog, and hail and thunder storms made at voluntary stations are in many cases incomplete, the data pertaining to these special phenomena were taken exclusively from the record of observations at the section center, Indianapolis.

Temperature.—Mean annual: State, 52.3°; north section, 50.3°; central section, 51.8°; south section, 54.6°. Mean for the winter months, December, January, and February: North section, 26°; central section, 29.2°; south section, 33.7°. Mean for the spring months, March, April and May: North section, 49°; central section, 51°; south section, 54.7°. Mean for the summer months, June, July, and August: North section, 72.3°; central section, 73°; south section, 75°. Mean for the fall months, September, October, and November: North section, 52.9°; central section, 54°; south section, 56.7°. The highest

temperature ever recorded in the State was 112° at Salem, on July 22, 1901. The lowest ever recorded was -33° at La Fayette and Romney, in January, 1885.

Precipitation.—Average annual amount: State, 38.4 inches; north section, 35.2 inches; central section, 38.4 inches; south section, 41.6 inches. Average for the winter months, December, January, and February: North section, 7.5 inches; central section, 8.2 inches; south section, 10.9 inches. Average for the spring months, March, April, and May: North section, 9.9 inches; central section, 10.8 inches; south section, 12.8 inches. Average for the summer months, June, July, and August: North section, 10.4 inches; central section, 11.1 inches; south section, 12.6 inches. Average for the fall months, September, October, and November: North section, 9.2 inches; central section, 8.9 inches; south section, 11.6 inches. Snow, depth of annual fall: North section, 47.4 inches; central section, 23 inches; south section, 25.4 inches. The average date of first killing frost in autumn was: North section, October 8; central section, October 15; south section, October 18. The average date of last killing frost in spring was: North section, April 30; central section, April 22; south section, April 14.

Miscellaneous phenomena.—Average number of days with fog, 7; hail, 2; thunderstorms, 38.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (see Marion)		Northern		Lawrence (see Marengo)		Southern	
Allen (see Angola)		do.		Madison (see Marion)		Central	
Bartholomew (see Connersville)		Southern		Marion	Indianapolis	do.	707
Benton (see Lafayette)		Northern		Marshall (see South Bend)		Northern	
Blackford (see Marion)		do.		Martin (see Marengo)		Southern	
Boone (see Indianapolis)		Central		Miami (see Marion)		Northern	
Brown (see Indianapolis)		Southern		Monroe (see Indianapolis)		Central	
Carroll (see Lafayette)		Northern		Montgomery (see Lafayette)		do.	
Cass (see Lafayette)		do.		Morgan (see Indianapolis)		do.	
Clark (see Vevay)		Southern		Newton (see Lafayette)		Northern	
Clay (see Rockville)		Central		Noble (see Angola)		do.	
Clinton (see Lafayette)		do.		Ohio (see Vevay)		Southern	
Crawford	Marengo	Southern	711	Orange (see Marengo)		do.	
Daviess (see Princeton)		do.		Owen (see Rockville)		Central	
Dearborn (see Vevay)		do.		Parko	Rockville	do.	706
Decatur (see Connersville)		do.		Perry (see Marengo)		Southern	
Dekalb (see Angola)		Northern		Pike (see Princeton)		do.	
Delaware (see Farmland)		Central		Porter (see South Bend)		Northern	
Dubois (see Marengo)		Southern		Posey (see Princeton)		Southern	
Elkhart (see South Bend)		Northern		Pulaski (see Lafayette)		Northern	
Fayette	Connersville	Central	708	Putnam (see Rockville)		Central	
Floyd (see Marengo)		Southern		Randolph	Farmland	do.	705
Fountain (see Rockville)		Central		Ripley (see Vevay)		Southern	
Franklin (see Connersville)		do.		Rush (see Connersville)		Central	
Fulton (see South Bend)		Northern		Scott (see Vevay)		Southern	
Gibson	Princeton	Southern	710	Shelby (see Indianapolis)		Central	
Grant	Marion	Northern	704	Spencer (see Marengo)		Southern	
Greene (see Princeton)		Southern		Starks (see South Bend)		Northern	
Hamilton (see Indianapolis)		Central		St. Joseph	South Bend	do.	701
Hancock (see Indianapolis)		do.		Stauben	Angola	do.	702
Harrison (see Marion)		Southern		Sullivan (see Princeton)		Southern	
Hendricks (see Indianapolis)		Central		Switzerland	Vevay	do.	709
Henry (see Connersville)		do.		Tippecanoe	Lafayette	Northern	703
Howard (see Marion)		Northern		Tipton (see Marion)		Central	
Huntington (see Marion)		do.		Union (see Connersville)		do.	
Jackson (see Marengo)		Southern		Vanderburg (see Princeton)		Southern	
Jasper (see Lafayette)		Northern		Vermilion (see Rockville)		Central	
Jay (see Farmland)		Central		Vigo (see Rockville)		do.	
Jefferson (see Vevay)		Southern		Wabash (see Marion)		Northern	
Jennings (see Vevay)		do.		Warren (see Lafayette)		Central	
Johnson (see Indianapolis)		Central		Warriek (see Princeton)		Southern	
Knox (see Princeton)		Southern		Washington (see Marengo)		do.	
Kosciusko (see South Bend)		Northern		Wayne (see Connersville)		Central	
La Grange (see Angola)		do.		Weiss (see Marion)		Northern	
Lake (see South Bend)		do.		White (see Lafayette)		do.	
La Porte (see South Bend)		do.		Whitley (see Angola)		do.	

STATE SUMMARY.

Station.	Number.	Temperature.								Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.	
		° F.	° F.	° F.	° F.		° F.				
South Bend.....	1	50	60	40	103	July, 1901	-22	January, 1897	19	123	
Angola.....	2	49	57	39	104	July, 1894	-25	February, 1885	6 (?)	130	
Lafayette.....	3	51	62	41	105	July, 1887	-33	January, 1885	27	120	
Marion.....	4	51	62	41	105	July, 1901	-25	January, 1887	28	117	
Farmland.....	5	51	60	41	102	July, 1887	-24	January, 1885	14	110	
Rockville.....	6	52	62	42	104	July, 1901	-20	February, 1899	28	112	
Indianapolis.....	7	53	61	44	106	do.	-25	January, 1884	19	87	
Connersville.....	8	52	62	41	107	do.	-22	do.	24	116	
Vevay.....	9	55	65	46	105	do.	-23	do.	30	82	
Princeton.....	10	54	65	44	111	do.	-20	February, 1899	52	95	
Marengo.....	11	56	67	44	106	do.	-28	do.	42	97	

STATE SUMMARY—Continued.

Station.	Num- ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
South Bend.....	1	Oct. 8	May 10	Sept. 20	May 31	<i>Inches.</i> 34.5	<i>Inches.</i> 8.4	<i>Inches.</i> 10.0	<i>Inches.</i> 8.4	<i>Inches.</i> 7.7
Angola.....	2	Oct. 14	Apr. 27	Sept. 21	May 21	38.7	9.8	11.1	10.0	7.8
Lafayette.....	3	Sept. 29	Apr. 26	Sept. 14	May 27	37.9	10.7	11.5	8.4	7.4
Marion.....	4	Oct. 2	Apr. 24	....do....	May 22	37.0	11.5	10.3	8.3	6.9
Farmland.....	5	Oct. 14	Apr. 21	Sept. 26	May 21	38.5	10.7	10.9	8.7	8.2
Rockville.....	6	Oct. 8	Apr. 22	Sept. 13	May 15	37.8	10.7	11.0	8.7	7.4
Indianapolis.....	7	Oct. 19	Apr. 16	Sept. 21	May 21	41.9	11.2	11.8	9.8	9.1
Connersville.....	8	Oct. 3	Apr. 27	Sept. 14	....do....	38.2	10.5	10.1	8.7	8.9
Vevay.....	9	Oct. 24	Apr. 19	Sept. 27	May 15	43.1	11.9	11.9	11.6	10.9
Princeton.....	10	Oct. 21	Apr. 12	Sept. 30	May 14	39.4	11.0	9.9	9.2	9.3
Marengo.....	11	Oct. 10	Apr. 10	Sept. 24	May 4	^a 57.6	15.6	15.9	13.6	12.5

^a The measurements in early years were apparently in excess of the true amount.

INDIANA.

Northern Section; ST. JOSEPH COUNTY. Station; SOUTH BEND.

H. H. SWAIM, Observer.

[Established by Weather Bureau in 1894. Latitude, 41° 36' N. Longitude, 86° 16' W. Elevation, about 800 feet.]

The station is located on the orchard and nursery farm of the observer, about three miles southwest of the center of the business district of South Bend, and near the summit of the divide between the Mississippi watershed and the Great Lakes.

The instrument shelter, which is of the cotton-region pattern, is mounted on posts 4 feet above the ground. The nearest obstructions are a barn 50 feet east and a white pine tree 30 feet northeast. A grove of second-growth forest trees with evergreens about the farm buildings breaks the force of the wind from the northeast.

The rain gage is exposed in an open space 50 feet west of the barn, and the height of the top of the gage above ground is 5½ feet.

The temperature records at this station have been made from self-registering thermometers since 1894, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY, 1894, TO DECEMBER, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	35	61	21	-15	33	19	3.0	14	8.2	3.3	16.5	12.0	SW.
January.....	25	33	60	18	-22	29	18	2.5	12	3.8	2.9	15.1	15.0	SW.
February.....	23	31	63	14	-20	29	16	2.2	10	0.8	3.3	13.5	14.0	SW.
Winter mean.....	25	33	61	18	-15	30	17	7.7	36	12.8	9.5	45.1	15.0	SW.
March.....	37	46	79	28	-3	44	29	3.0	13	0.8	1.9	9.5	8.0	SW.
April.....	50	60	88	39	13	56	47	2.1	10	1.1	4.9	1.1	3.0	SW.
May.....	61	72	95	50	27	67	56	3.3	12	1.3	1.2	0.0	0.0	SW.
Spring mean.....	48	59	87	39	13	55	47	8.4	35	3.2	8.0	10.6	3.0	SW.
June.....	69	81	97	58	37	72	64	3.2	10	1.5	5.5	0.0	0.0	SW.
July.....	74	85	103	63	44	79	72	3.6	9	1.6	6.4	0.0	0.0	SW.
August.....	72	84	97	61	44	76	68	3.2	8	2.4	5.2	0.0	0.0	NW.
Summer mean.....	72	83	97	61	44	76	68	10.0	27	5.5	17.1	0.0	0.0	SW.
September.....	66	77	98	55	30	70	61	2.9	10	1.2	3.7	T.	T.	SW.
October.....	54	65	90	44	17	61	46	2.4	10	1.5	2.5	0.1	0.5	SW.
November.....	40	48	74	32	7	48	34	3.1	12	3.8	1.4	9.2	7.5	SW.
Fall mean.....	53	63	81	41	18	59	47	8.4	32	6.5	7.6	9.3	4.5	SW.
Annual mean.....	50	60	103	40	-22	61	50	34.5	130	28.0	42.2	65.0	15.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 22, 25.	July 17, 18.	1900	Jan. 23, 29, 31; Feb. 1, 16, 17, 24, 25; Mar. 17.	None.
1895	Jan. 12-14, 27-31; Feb. 2, 4-12; Dec. 3, 13.	May 31; June 3, 10, 11, 25; July 7, 16, 18; Aug. 9, 10, 14, 16.	1901	Jan. 1, 31; Feb. 6, 7, 11, 15, 21-23; Dec. 15-21.	June 25; July 1, 4, 10, 14-24, 26, 27; Aug. 9, 13.
1896	Jan. 4, 5; Feb. 17, 19-21; Mar. 12.	Aug. 8.	1902	Jan. 27, 28; Feb. 2-5, 7, 8, 14, 15; Dec. 9.	None.
1897	Jan. 24-28, 30, 31; Feb. 27; Dec. 18, 24.	June 15; July 3, 4, 6-10, 25; Sept. 8-10, 12-15.	1903	Jan. 10, 12-14; Feb. 17-20; Dec. 2, 13-16, 26, 27, 30, 31.	Do.
1898	Jan. 2; Feb. 3; Dec. 14.	July 14, 15, 23, 24; Aug. 23.			
1899	Jan. 29-31; Feb. 1, 7-13; Dec. 31.	Aug. 11, 19; Sept. 5, 7.			

INDIANA.

Northern Section: STEUBEN COUNTY. Station: ANGOLA.

LEWIS STEALY, Observer.

[Established 1884. Latitude, 41° 37' N. Longitude, 85° 1' W. Elevation, 1,052 feet.]

The country in the vicinity of Angola consists of broad ridges and similar intervening valleys, many of the former broken and hilly and several of the latter containing lakes of considerable size.

The thermometers are exposed in a standard shelter 4 feet above the ground, near but separated from the wall of a wood-house, and the rain gage is located in an open space northwest of the shelter.

Self-registering thermometers have been in use at the station since October, 1898, inclusive. Prior to that time the record was the result of eye observations of the ordinary exposed thermometer.

From January, 1885, to September, 1898, inclusive, monthly mean temperatures were obtained from observations made at 7 a. m., 2 p. m., and 9 p. m.; from October, 1898, to December, 1903, from readings of the maximum and minimum thermometers.

Mean of maxima and mean of minima temperature, average number of days with maximum above 90° and minimum below 32°, and frost data are for the period of observation January 1, 1899, to December, 1903; the remaining data are for the period January 1, 1885, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	32	32	65	19	-13	42	20	2.6	10	2.0	1.5	8.7	12.0	SW.
January.....	24	32	64	18	-20	35	16	2.4	11	1.8	2.4	10.8	8.0	SW.
February.....	24	28	62	13	-25	34	12	2.8	9	2.2	2.0	9.7	18.0	NW.
Winter mean.....	26	31		17				7.8	30	6.0	5.9	29.2		SW.
March.....	34	43	76	26	-10	42	24	3.0	10	2.7	3.1	7.8	14.0	NW.
April.....	48	58	90	38	15	55	43	2.8	7	2.1	5.9	2.7	10.0	NW.
May.....	61	71	100	49	26	71	56	4.0	10	6.6	4.4	0.2	2.2	SW.
Spring mean.....	48	57		38				9.8	27	10.4	13.4	10.7		NW.
June.....	70	77	104	56	38	76	63	3.9	9	1.8	3.6	0.0	0.0	SW.
July.....	74	83	104	62	45	78	71	4.0	7	1.1	12.8	0.0	0.0	SW.
August.....	71	82	101	61	44	75	66	3.2	6	0.9	7.6	0.0	0.0	SW.
Summer mean.....	72	81		60				11.1	22	3.8	24.0	0.0		SW.
September.....	64	73	100	52	28	69	60	3.5	7	5.2	5.9	0.0	0.0	SW.
October.....	51	64	91	45	18	60	45	2.9	7	3.0	0.8	0.1	0.5	SW.
November.....	38	46	76	32	7	45	34	3.6	10	2.7	2.1	5.1	7.0	NW.
Fall mean.....	51	61		43				10.0	24	10.9	8.8	5.2		SW.
Annual mean.....	49	57	104	39	-25			38.7	103	31.1	52.1	45.1	18.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD OCTOBER 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1898	Jan., Feb., and Mar. missing.	None.	1901	Jan. 19, 31; Feb. 2, 7, 11, 23; Mar. 6; Dec. 15-21.	July 2, 21.
1899	Jan. 29-31; Feb. 1, 7-14; Dec. 30, 31.		1902	Jan. 28; Feb. 3, 4, 5...	None.
1900	Jan. 29, 31; Feb. 1, 17, 24, 25; Mar. 17.		1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 14, 26, 27.	Do.

INDIANA.

Northern Section: TIPPECANOE COUNTY. Station: LAFAYETTE.

W. J. JONES, Jr., Observer.

[Established January, 1880. Latitude, 40° 27' N. Longitude, 86° 55' W. Elevation, 661 feet.]

The station equipment, consisting of standard instruments, is located on the campus of the Purdue experimental station, on the Wabash River second bottom, on the opposite side of the river from Lafayette and about 1 mile west of it. West of the station the country is hilly, and to the north there are bluffs and much timber.

From 1880 to 1887, inclusive, monthly mean temperatures were obtained from observations made at 7 a. m., 2 p. m., and 9 p. m.; after that time, from the daily extremes of temperature.

Mean of maxima and mean of minima temperature, wind data, and number of days with 0.01 or more precipitation are for the period of observation, January, 1888, to December, 1903; average number of days with temperature above 90° and below 32°, frost data, and days with snow, from January, 1893, to December, 1903. The remaining data are approximately for the full period of observation, January 1, 1880, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	40	69	22	-17	44	20	2.5	10	2.0	2.9	3.7	5.8	SW.
January.....	25	35	70	18	-33	41	18	2.1	10	1.2	1.4	7.3	5.2	SW.
February.....	27	36	69	18	-26	38	15	2.8	10	2.9	4.4	5.9	6.0	SW.
Winter mean.....	27	37		19				7.4	30	6.1	8.7	16.9		SW.
March.....	38	48	82	29	- 5	46	30	2.9	12	1.4	3.9	3.7	5.7	NW.
April.....	51	62	89	41	10	58	45	3.3	11	2.9	2.8	0.4	1.8	N.
May.....	62	72	97	50	27	69	55	4.5	12	2.1	7.8	T.	T.	S.
Spring mean.....	50	61		40				10.7	45	6.4	14.5	4.1		N.
June.....	71	82	100	60	33	75	66	4.7	11	2.0	9.2	0.0	0.0	SW.
July.....	75	86	105	63	42	81	70	3.6	10	0.8	3.8	0.0	0.0	SW.
August.....	73	85	102	61	39	79	68	3.2	7	3.1	5.1	0.0	0.0	NE.
Summer mean.....	73	84		61				11.5	28	5.9	18.1	0.0		SW.
September.....	66	78	101	54	24	71	61	2.7	7	3.0	0.3	0.0	0.0	N.
October.....	53	66	92	42	16	62	47	2.5	7	1.6	3.4	T.	T.	SW.
November.....	40	49	94	31	- 1	49	27	3.2	10	3.7	2.2	1.4	5.7	SW.
Fall mean.....	53	64		42				8.4	24	8.3	5.9	1.4		SW.
Annual mean.....	51	62	105	41	-33			38.0	127	26.7	47.2	22.4	6.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 16; Dec. 28.	June 11, 12, 14, 15; July 16-18, 26, 31; Aug. 8, 9.	1900	Jan. 1, 2, 9, 31; Feb. 1, 17, 19, 24, 25; Mar. 16.	Aug. 10.
1895	Jan. 11-14, 27, 28, 30, 31; Feb. 2, 4, 5, 7-12, 15; Dec. 3, 31.	May 30, 31; June 1-3, 9-11, 16, 25; Aug. 10, 14, 15, 16, 17.	1901	Jan. 1, 2, 31; Feb. 6, 13; Dec. 14-16, 19-21.	June 30; July 2, 4, 10, 15-18, 20-23, 30; Aug. 2, 9, 13, 14.
1896	Jan. 1, 3, 4, 5; Feb. 19-21.	July 14; Aug. 6.	1902	Jan. 27, 28; Feb. 2-5, 8, 9, 14, 18, 19.	None.
1897	Jan. 24-31; Feb. 27; Dec. 18, 24.	July 7-10; Aug. 1, 3, 29; Sept. 7-15, 26.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 13-18, 26, 27, 30, 31.	July 4, 8, 9, 10, 25, 26, 28; Aug. 24.
1898	Feb. 1-3; Nov. 26; Dec. 14.	July 24; Sept. 3.			
1899	Jan. 29-31; Feb. 1, 7-14; Mar. 7; Dec. 30, 31.	Aug. 3; Sept. 5-8.			

INDIANA.

Northern Section: GRANT COUNTY. Station: MARION.

JAMES F. HOOD, Observer.

[Established by Signal Service in 1886. Latitude, 40° 29' N. Longitude, 85° 41' W. Elevation, 814 feet.]

The station is located at the residence of the observer at 120 North E street, about 1 mile northwest of the court-house. The immediate surroundings of the station are level. There are no hills of any consequence in the vicinity. The only irregularities are the bluffs along the river and none of these are higher than 40 or 50 feet, but generally they are lower. These bluffs are some distance to the north and east. The station is on about the highest ground in the vicinity.

Maximum and minimum thermometers have been used in obtaining monthly mean temperatures since March, 1891. Prior to that time the eye readings of an exposed thermometer were made at 7 a. m. and 6 p. m.

Absolute maximum and minimum temperatures are for the period of observation, January, 1886, to December, 1903; the remaining data are from March, 1891, to December, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	38	66	23	-12	38	22	2.4	8	3.3	2.4	6.0	8.0	SW.
January.....	26	35	66	18	-25	34	16	1.9	10	1.8	3.9	9.5	7.0	SW.
February.....	26	35	67	17	-19	33	18	2.6	9	0.5	1.8	7.6	9.0	W.
Winter mean.....	27	36		19				6.9	27	5.6	8.1	23.1		SW.
March.....	39	49	81	30	-2	47	34	3.3	11	2.2	6.2	5.0	12.0	SW.
April.....	51	63	89	40	15	57	48	3.5	12	1.7	2.6	1.0	3.0	SW.
May.....	62	74	96	50	26	69	57	4.7	13	0.8	8.4	0.2	2.0	SW.
Spring mean.....	51	62		40				11.5	36	4.7	17.2	6.2		SW.
June.....	71	83	100	58	35	74	65	4.5	10	1.4	4.3	0.0	0.0	SW.
July.....	74	88	105	61	37	81	68	2.9	8	0.8	2.1	0.0	0.0	SW.
August.....	73	86	101	61	40	78	69	2.9	8	1.4	2.1	0.0	0.0	SW.
Summer mean.....	73	86		60				10.3	26	3.6	8.5	0.0		SW.
September.....	67	79	101	56	29	70	63	2.8	7	2.5	2.5	0.0	0.0	SW.
October.....	54	66	91	44	15	61	47	1.9	6	0.9	3.5	T.	T.	SW.
November.....	40	49	75	33	2	49	35	3.6	9	5.4	3.5	2.9	8.0	SW.
Fall mean.....	54	65		44				8.3	22	8.8	9.5	2.9		SW.
Annual mean.....	51	62	105	41	-25			37.0	111	22.7	43.3	32.2	12.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 25, 30.....	June 28; July 17, 18, 26; Aug. 9.	1900	Jan. 29, 31; Feb. 1, 17, 24, 25; Mar. 17.	July 3, 4; Aug. 4, 7, 9-11; Sept. 8, 10.
1895	Jan. 12-14, 27, 28, 30, 31; Feb. 2, 4, 5, 7-12, 15.	May 29-31; June 1-3, 11; July 16, 18; Aug. 9, 10, 15-17, 28; Sept. 22.	1901	Jan. 1, 2, 31; Feb. 6; Dec. 14-21.	June 11, 24, 25, 30; July 1-4, 10, 15-17, 19-23, 30; Aug. 9, 13.
1896	Jan. 3, 4; Feb. 19, 21.....	July 29, 30.	1902	Jan. 27, 28; Feb. 3-5, 7-9, 14.	June 15; July 8, 9, 17.
1897	Jan. 23-31; Feb. 27.....	June 15; July 3, 4, 6-10; Aug. 3; Sept. 8-16.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 13-15, 26, 30.	July 4, 8, 28; Aug. 3, 24.
1898	Feb. 3; Dec. 14.....	July 1, 2, 14, 15, 24; Aug. 31; Sept. 1, 3.			
1899	Jan. 29-31; Feb. 1, 8-14; Mar. 7; Dec. 30, 31.	July 4, 23, 24; Aug. 3, 4; Sept. 2, 5, 7.			

INDIANA.

Central Section: RANDOLPH COUNTY. Station: FARMLAND.

W. J. DAVISSON, Observer.

[Established August, 1882. Latitude, 40° 11' N. Longitude, 85° 10' W. Elevation, 1,101 feet.]

Farmland is situated on the Cleveland, Cincinnati, Chicago and St. Louis Railroad, 67 miles northeast of Indianapolis and 18 miles west of the Ohio State line at Union City. The country surrounding the station is undulating rather than rolling or hilly.

The instrument shelter containing the thermometers is fastened to the north wall, near the northeast corner of the observer's residence. It was constructed by the observer and has louvered sides and open back. The height of the thermometers above ground is 4 feet. The rain gage is exposed near the center of a lawn, which is about 80 feet wide by 100 feet deep. The height of the top of the rain gage above ground is 3½ feet.

The station was established and the instruments placed where they are now exposed by the present observer.

From August, 1882, to August, 1892, monthly mean temperatures were obtained from observations made at 7 a. m., 2 p. m., and 9 p. m.; from September, 1892, to December, 1903, from the daily extremes of temperature.

Mean of the maximum and minimum temperature, average number of days with temperature above 90° and below 32°, and frost data are for the period of observation, January 1, 1893, to December 31, 1903. The remaining data are, approximately, for the period August 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great- est depth in 24 hours.	
December.....	° F. 32	° F. 38	° F. 64	° F. 23	° F. -16	° F. 46	° F. 23	In. 2.6	7	In. 1.3	In. 1.9	In. 6.6	In. 12.0	
January.....	27	35	68	20	-24	39	15	2.6	9	1.4	6.6	8.8	6.0	
February.....	29	35	70	19	-19	40	17	3.0	8	3.0	3.9	6.3	12.0	
Winter mean.....	29	36		21				8.2	24	5.7	12.4	21.7		
March.....	38	49	79	31	- 2	46	29	3.0	9	2.2	4.0	5.3	7.0	
April.....	51	61	86	40	18	59	47	3.2	9	2.0	3.6	2.7	5.0	
May.....	61	72	93	51	30	68	56	4.5	9	4.3	5.9	0.2	4.0	
Spring mean.....	50	61		41				10.7	27	8.5	13.5	8.2		
June.....	72	80	96	58	33	76	64	4.0	8	1.4	4.6	0.0	0.0	
July.....	74	86	102	64	44	81	65	3.3	7	0.6	0.9	0.0	0.0	
August.....	71	83	98	60	43	78	68	3.6	6	2.2	6.0	0.0	0.0	
Summer mean.....	72	83		61				10.9	21	4.2	11.5	0.0		
September.....	65	77	94	54	30	68	62	3.4	6	3.1	9.0	0.0	0.0	
October.....	53	59	86	44	16	59	48	1.9	5	3.2	2.3	0.5	2.0	
November.....	40	50	74	32	2	49	35	3.4	7	3.1	2.6	3.1	6.0	
Fall mean.....	53	62		43				8.7	18	9.4	13.9	3.6		
Annual mean.....	51	60	102	41	-24			38.5	90	27.8	51.3	33.5	12.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25.....	Aug. 9.	1900	Jan. 28, 30, 31; Feb. 16, 24; Mar. 16.	None.
1895	Jan. 11, 12, 30; Feb. 1, 3-11.	June 3.	1901	Jan. 1, 30; Dec. 15-17, 19-22.	June 30; July 1, 19, 21, 22, 24 27.
1896	Jan. 3-5; Feb. 19, 20...	July 3, 4, 8.	1902	Feb. 3, 5, 8.....	None.
1897	Jan. 24-29.....	None.	1903	Jan. 12, 13; Feb. 17-19; Dec. 26, 27.	Do.
1898	Feb. 2; Dec. 13.....	Do.			
1899	Jan. 28, 30, 31; Feb. 7-13; Dec. 15, 29.				

INDIANA.

Central Section: PARKE COUNTY. Station: ROCKVILLE.

W. N. WIRT, Observer.

[Established by United States Signal Service in 1887. Latitude, 39° 46' N. Longitude, 87° 19' W. Elevation, 722 feet.]

The country surrounding Rockville is somewhat hilly.

Since its establishment this station has been maintained without expense to the Government for the instrumental equipment, except that the maximum thermometer now in use was furnished by the Weather Bureau in 1897.

The instrument shelter is of the regulation pattern, and is located on a fence 4 feet high, over a lawn, 40 feet from a building, 10 feet from a fruit tree, with no other obstructions near. The rain gauge is exposed on a lawn, 15 feet from the nearest obstruction—a small fruit tree. The top of the gauge is 40 inches above the ground.

Maximum and minimum thermometers have been in use at Rockville since January, 1891. Prior to that time the temperature data was obtained from readings of ordinary thermometers and the observations were taken at 7 a. m. and 7 p. m. except for an occasional month, when they were taken at 7 a. m., 2 p. m., and 7 p. m.

Mean of the maximum and minimum temperature, average number of days with temperature above 90° and below 32°, and frost data are for the period of observation January, 1891, to December, 1903. The remaining data are for the period January 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	32	38	76	22	-12	47	23	2.4	8	3.0	1.3	2.3	5.0	S.
January.....	28	36	69	19	-19	38	15	2.3	8	2.3	4.2	4.4	8.0	S.
February.....	29	37	69	19	-20	39	20	2.7	9	3.0	1.7	4.3	8.0	NW.
Winter mean.....	30	37		20				7.4	25	8.3	7.2	11.0		S.
March.....	40	50	84	31	-3	47	35	3.3	11	3.7	9.0	3.0	10.0	S.
April.....	53	63	88	42	19	60	50	3.4	10	2.7	2.6	0.2	3.0	S.
May.....	63	74	96	51	28	70	57	4.0	12	3.3	3.5	T.	T.	S.
Spring mean.....	52	62		41				10.7	33	9.7	15.1	3.2		S.
June.....	72	82	100	60	34	76	65	4.8	12	2.0	6.2	0.0	0.0	S.
July.....	75	87	104	63	43	80	72	3.3	8	1.4	2.1	0.0	0.0	S.
August.....	73	86	101	62	40	79	69	2.9	7	2.2	3.6	0.0	0.0	S.
Summer mean.....	73	85		62				11.0	27	5.6	11.9	0.0		S.
September.....	67	80	103	55	26	71	62	2.8	6	2.5	6.1	0.0	0.0	S.
October.....	55	67	92	43	18	63	47	2.2	7	0.8	4.4	T.	T.	S.
November.....	42	50	75	32	2	49	37	3.7	10	2.8	3.3	0.9	3.0	S.
Fall mean.....	56	66		43				8.7	23	6.1	13.8	0.9		S.
Annual mean.....	55	65	104	42	-20			37.8	108	29.7	48.0	15.1	10.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25; Feb. 16; Dec. 23.	June 11, 12, 14, 15, 22, 23, 28-30; July 11, 12, 16-18, 26, 27; Aug. 1, 7-11, 18.	1900	Jan. 29, 31; Feb. 1, 17, 25.	None.
1895	Jan. 12, 14, 27, 30, 31; Feb. 2, 4, 5, 7-10, 13; Dec. 31.	May 29, 31; June 1-3, 9-11, 17, 25; July 16; Aug. 10, 16, 17, 23, 27.	1901	Jan. 1, 2, 31; Feb. 6; Dec. 14-21.	July 20-28, 30; Aug. 2, 8, 9.
1896	Jan. 4, 5; Feb. 20, 21.	July 29; Aug. 6, 8.	1902	Jan. 27; Feb. 3-5, 8, 9, 17, 18.	None.
1897	Jan. 24-30.	July 7-10; Aug. 1, 3, 29; Sept. 8-15.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 13 15-26.	Do.
1898	Feb. 3; Dec. 14.	July 25; Sept. 3.			
1899	Jan. 29, 31; Feb. 1, 8-14; Mar. 7; Dec. 30, 31.	Aug. 2-4, 11, 19, 23, 24, 27, Sept. 2, 3, 5-7.			

INDIANA.

Central District: MARION COUNTY. Station: INDIANAPOLIS.

W. T. BLYTHE, Section Director.

[Established March, 1871. Latitude, 39° 46' N. Longitude, 86° 10' W. Elevation, 711 feet.]

The instruments are exposed on the roof and the office is located on the ninth floor of the Majestic Building, northeast corner of Pennsylvania and Maryland streets. The location is four city blocks southeast from the Soldiers and Sailors' Monument, four blocks northeast from the union depot, and the same distance south from the site of the new Federal building now in course of construction.

Tabulated data are from the following periods of observation: Frost, thirty years; sunshine, seven years; snowfall, nineteen years; humidity and wind direction, fifteen years. Other data are for full period of thirty-two years, January 1, 1872, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth.	Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	Direction of prevailing wind.
December.....	33	39	68	26	-15	47	23	3.0	12	4.1	0.9	5.1	6.9	80	1.62	80	1.89	115	39	S.
January.....	28	36	69	21	-25	45	18	2.8	13	1.6	4.9	6.9	9.6	82	1.39	75	1.52	131	43	SW.
February.....	31	39	72	23	-18	42	20	3.3	12	1.6	4.6	4.4	5.5	80	1.36	74	1.56	140	47	W.
Winter mean.....	31	38	.....	23	.....	.....	.....	9.1	37	7.3	10.4	16.4	.....	81	1.46	76	1.66	129	43	S.
March.....	40	47	82	32	0	50	33	3.8	14	4.1	7.4	3.6	5.1	77	1.75	67	2.00	149	40	NW.
April.....	52	60	87	44	19	60	46	3.4	12	3.2	2.3	1.2	5.0	71	2.70	60	2.91	206	52	NW.
May.....	63	73	96	54	31	71	58	4.0	13	2.4	5.1	0.1	2.4	72	4.00	61	4.28	256	57	S.
Spring mean.....	52	60	.....	43	.....	.....	.....	11.2	39	9.8	14.8	4.9	.....	73	2.82	63	3.06	204	50	NW.
June.....	72	82	100	63	39	77	66	4.4	12	3.5	7.5	0.0	0.0	74	5.36	61	5.71	280	61	SW.
July.....	76	86	106	67	48	82	72	4.2	10	0.8	7.5	0.0	0.0	69	5.69	57	6.23	326	72	SW.
August.....	74	83	101	64	46	79	70	3.2	9	3.6	5.9	0.0	0.0	75	5.61	57	5.86	272	64	NW.
Summer mean.....	74	84	.....	65	.....	.....	.....	11.8	31	7.9	20.9	0.0	.....	73	5.55	58	5.93	293	66	SW.
September.....	67	76	98	58	30	74	60	3.3	8	0.7	3.9	0.0	0.0	76	4.52	59	4.71	250	67	S.
October.....	55	64	89	46	22	63	49	2.8	9	3.5	4.4	T.	0.1	78	2.96	59	3.17	218	63	S.
November.....	42	49	76	34	-5	46	31	3.7	12	1.2	2.3	1.6	4.7	79	2.01	69	2.27	137	46	S.
Fall mean.....	53	63	.....	46	.....	.....	.....	9.8	29	5.4	10.6	1.6	.....	78	3.16	62	3.38	202	59	S.
Annual mean.....	55	61	106	44	-25	.....	.....	41.9	136	30.4	56.7	22.9	9.6	76	3.25	65	3.51	207	54	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25.....	June 11-13, 28; July 18, 26, 31; Aug. 8-10; Sept. 2.	1899	Jan. 29, 31; Feb. 8-13; Mar. 7; Dec. 30.	Aug. 2; Sept. 5-7.
1895	Jan. 12, 13; Feb. 2, 4, 5, 7-9.	May 31; June 1-3; Aug. 15-17, 27.	1900	Jan. 31; Feb. 1, 17, 24, 25.	None.
1896	Jan. 4; Feb. 20, 21.....	July 27, 29, 30; Aug. 5, 6, 8-10, 22.	1901	None.....	June 30; July 11, 15, 16, 21-28, 30; Aug. 8.
1897	Jan. 24-28.....	July 3, 6-10; Aug. 3; Sept. 11, 12.	1902	Feb. 3-5, 8, 9.....	None.
1898	Feb. 3; Dec. 14.....	July 2, 24.	1903	Jan. 11-13; Feb. 17-19.	Do.

INDIANA.

Central Section: FAYETTE COUNTY. Station: CONNERSVILLE.

HENRY HESSLER, Observer.

[Established June, 1882. Latitude, 39° 40' N. Longitude, 85° 03' W. Elevation, 844 feet.]

The station is located where it was first established in 1882, in the grounds of the observer's residence, on a hill, about three-quarters of a mile southwest of and about 100 feet higher than the city. Except to the eastward, where lies the valley of White Water River, the surrounding country is hilly.

The instrument shelter of standard pattern, containing maximum and minimum thermometers, is located about 70 feet southwest of a two-story dwelling, and the height of the thermometers above the ground is 5½ feet, and the rain gage is about 50 feet northwest of the instrument shelter. The exposure is unobstructed, except for small fruit trees 20 feet from the shelter and about 30 feet from the gage. The height of the top of the gage above the ground is 3½ feet.

From June, 1882, to October, 1892, monthly mean temperatures were obtained from observations made at 7 a. m., 2 p. m., and 9 p. m.; from November, 1892, to December, 1903, from readings of the maximum and minimum thermometers.

Monthly and annual means and absolute maximum and minimum temperatures, precipitation, and average depth of snow are for the period of observation June 1, 1882, to December 31, 1903; the remaining data are, approximately, for the period January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	32	39	68	22	-13	46	24	2.7	8	3.4	3.3	5.0	7.0	SW.
January.....	27	36	68	20	-22	40	19	2.9	10	4.0	2.6	5.2	5.0	SW.
February.....	29	36	70	19	-22	37	19	3.3	10	0.7	7.6	4.9	4.0	SW.
Winter mean.....	29	37		20				8.9	28	8.1	13.5	15.1		SW.
March.....	39	50	80	31	0	46	31	3.4	11	0.5	3.1	3.2	3.5	SW.
April.....	51	62	89	41	19	58	48	3.0	9	1.8	3.5	1.2	2.0	SW.
May.....	62	74	92	50	28	60	56	4.1	12	1.9	5.9	T.	T.	SW.
Spring mean.....	51	62		41				10.5	32	4.2	12.5	4.4		SW.
June.....	72	82	98	59	39	77	65	4.4	10	4.5	5.6	0.0	0.0	SW.
July.....	75	87	107	63	45	80	69	2.9	8	0.2	3.2	0.0	0.0	SW.
August.....	72	86	100	60	42	79	68	2.8	8	0.9	2.1	0.0	0.0	NE.
Summer mean.....	73	85		61				10.1	26	5.6	10.9	0.0		SW.
September.....	65	79	99	54	27	71	60	2.6	7	1.3	1.4	0.0	0.0	NE.
October.....	53	66	88	42	14	61	46	2.4	7	0.6	6.5	T.	T.	SW.
November.....	41	51	77	32	1	50	37	3.7	9	5.8	6.2	1.5	7.0	SW.
Fall mean.....	53	65		43				8.7	23	7.7	14.1	1.5		SW.
Annual mean.....	52	62	107	41	-22			38.2	109	25.6	51.0	21.0	7.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 24, 25, 28, 29.....	Aug. 9, 10, 12.	1900	Jan. 29, 31; Feb. 1, 17, 25.	July 3, 4; Aug. 7-10; Sept. 10.
1895	Jan. 12-14, 31; Feb. 4, 5, 7-10, 12.	June 3; July 19; Aug. 16-18.	1901	Jan. 31; Feb. 6; Dec. 14-21.	June 11, 30; July 1-4, 10, 11, 15, 16, 20-30; Aug. 8, 9.
1896	Jan. 4; Feb. 20, 21.....	None.	1902	Feb. 3-5, 8, 9; Dec. 31.	None.
1897	Jan. 24-30.....	July 3-5, 7, 8.	1903	Jan. 10-13; Feb. 17-19; Dec. 26, 30.	Do.
1898	Jan. 2; Feb. 2, 3; Dec. 9, 14.	July 3, 4, 24, 25; Aug. 31; Sept. 2, 3.			
1899	Jan. 31; Feb. 1, 8-14; Dec. 16, 31.	June 22; July 3, 4, 12, 24; Aug. 2, 4; Sept. 2, 3, 5-7.			

INDIANA.

Southern Section: SWITZERLAND COUNTY. Station: VEVAY.

FREDERICA BOERNER, Observer.

[Established January, 1865. Latitude, 38° 47' N. Longitude, 84° 59' W. Elevation, 525 feet.]

Vevay is situated on the bank of the Ohio River a little less than 50 miles below Cincinnati, Ohio.

Although the tabulated data pertaining to the station, which are published below, cover only the period beginning with June, 1882, and ending with December, 1903, daily observations of temperature and precipitation were recorded by Mr. Charles G. Boerner from January, 1865, until his death in 1900.

The instrument shelter, which is of the cotton-region pattern, is located in an open space 15 feet from the nearest building. The height of the thermometers above ground is 5 feet.

The exposure of the rain gage, which is on the end of an open porch, is unobstructed. The height of the top of the gage above the ground is 16 feet.

Prior to 1887 the temperature record was made from eye observations of the exposed thermometers; since that time self-registering thermometers have been in use.

Mean of the maxima and mean of the minima, and average number of days with temperature above 90° and below 32°, are for the period of observation January, 1888, to December, 1903; the remaining data are for the period June, 1882, to December, 1903. The hours of observation prior to the use of self-registering instruments were 7 a. m., 2 p. m., and 9 p. m.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	36	44	72	29	- 5	49	28	2.9	7	1.9	3.0	4.1	13.0	SW.
January.....	32	40	70	26	- 23	44	20	3.9	9	3.2	7.4	7.5	10.0	SW.
February.....	34	41	75	26	- 22	44	23	4.1	9	3.1	6.1	6.1	10.0	SW.
Winter mean.....	34	42		27				10.9	25	8.2	16.5	17.7		SW.
March.....	43	52	85	34	2	51	36	3.8	11	2.1	7.8	4.0	8.0	NE.
April.....	56	66	91	45	24	63	50	3.6	9	2.5	4.3	3.8	1.0	SW.
May.....	66	75	95	55	32	73	61	4.5	10	4.3	4.7	0.1	2.0	SW.
Spring mean.....	55	64		45				11.9	30	8.9	16.8	7.9		SW.
June.....	74	84	99	65	43	77	68	4.8	9	3.9	9.5	0.0	0.0	SW.
July.....	77	88	105	68	41	83	72	3.5	7	0.6	5.6	0.0	0.0	SW.
August.....	75	87	101	66	44	82	72	3.3	7	2.0	3.5	0.0	0.0	SW.
Summer mean.....	75	86		66				11.6	23	6.5	18.6	0.0		SW.
September.....	69	81	99	58	32	76	64	3.0	6	2.1	2.8	T.	T.	SW.
October.....	57	69	91	45	18	64	50	2.0	5	0.9	2.1	T.	T.	SW.
November.....	45	53	79	36	5	53	41	3.7	8	0.9	2.9	1.1	5.5	SW.
Fall mean.....	57	68		46				8.7	19	3.9	7.8	1.1		SW.
Annual mean.....	55	65	105	46	- 23			43.1	97	27.5	59.7	26.7	13.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 29; Jan. 25.....	June 12, 13; July 2, 19, 31; Aug. 1, 2, 8-10; Sept. 2, 7, 8.	1899	Feb. 1, 8-14.....	June 22; July 4, 12, 15, 19, 23, 29; Aug. 2, 3, 4, 12; Sept. 1, 2, 5-7.
1895	Jan. 12; Feb. 7-10.....	June 1-3; July 18-20; Aug. 9, 10, 12, 14-17 Sept. 12, 18-22.	1900	Feb. 25.....	July 3, 15; Aug. 4, 5, 7-11, 18-21; Sept. 8-11, 25.
1896	Jan. 4.....	May 31; June 7; July 26-30; Aug. 6-11, 15, 22; Sept. 10-12.	1901	Dec. 15, 16, 20, 21.....	June 30; July 2, 3, 11, 15-17, 21-30; Aug. 8, 9.
1897	Jan. 24-26, 28, 30.....	June 14, 15, 29; July-Aug., missing; Sept. 1, 9-16.	1902	None.....	July 5, 17; Aug. 3.
1898	Dec. 14.....	June 24; July 1, 2, 3, 16, 20, 24, 27; Aug. 24; Sept. 1, 2.	1903	Dec. 26; Feb. 19.....	July 4, 9-11, 26; Aug. 24.

INDIANA.

Southern Section: GIBSON COUNTY. Station: PRINCETON.

ELISHA JONES, Observer.

[Established by Signal Service in 1882. Latitude, 38° 23' N. Longitude, 87° 35' W. Elevation, 481 feet.]

Princeton is the county seat of Gibson County. It is situated in the eastern edge of the Wabash River Valley.

The topography of the surrounding country on all sides, except the west, is more or less hilly.

The station thermometers, maximum and minimum, are exposed in a standard instrument shelter located on a blue-grass lawn, about 35 feet south of a one-story building; the height of the thermometers above the ground is 5 feet. The exposure of the rain gage is in an open space, and the height of the top of the gage above ground is 4 feet. The station was established in 1882, but the records on file for that year and the first half of 1883 are incomplete.

Up to January, 1899, monthly mean temperatures were obtained from readings of the standard exposed thermometer, made at morning, noon, and night. Since January, 1899, inclusive, daily readings of the maximum and minimum thermometers have been used.

Monthly mean temperatures, absolute maximum and minimum, and precipitation are for the period of observation, July, 1882, to December, 1903; mean of the maximum, mean of the minimum, and average number of days with temperatures above 90° and below 32°, from January, 1899, to December, 1903. The remaining data are for periods of varying length.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	35	39	70	24	- 8	49	28	3.2	6	5.1	2.4	4.9	13.0	SW.	
January.....	30	40	67	24	-15	42	22	2.9	7	1.0	7.6	7.5	10.0	NW.	
February.....	32	36	76	19	-20	42	20	3.2		3.4	7.2	6.4	12.0	NW.	
Winter mean.....	32	38	.....	22	.....	.....	.....	9.3	19	9.5	17.2	18.8	.....	NW.
March.....	43	52	83	35	2	49	35	4.2	7	1.7	8.8	7.1	9.5	NW.	
April.....	55	64	97	43	20	61	51	3.2	6	2.3	4.4	1.0	3.0	SW.	
May.....	65	79	98	54	28	71	60	3.6		6.1	3.7	0.0	0.0	SW.	
Spring mean.....	54	65	.....	44	.....	.....	.....	11.0	19	10.1	16.0	8.1	.....	SW.
June.....	74	85	105	62	39	79	68	4.3	7	0.1	3.0	0.0	0.0	SW.	
July.....	77	93	111	65	48	83	74	2.9	5	1.0	4.1	0.0	0.0	SW.	
August.....	75	90	106	64	47	81	71	2.7	4	0.2	4.0	0.0	0.0	SW.	
Summer mean.....	75	89	.....	64	.....	.....	.....	9.9	16	1.3	11.9	0.0	.....	SW.
September.....	68	82	105	55	27	72	64	3.1	4	2.1	3.6	0.0	0.0	SW.	
October.....	56	71	90	47	21	68	51	2.3	4	1.0	2.0	0.0	0.0	SW.	
November.....	43	54	76	35	- 4	51	40	3.8	6	3.9	5.5	2.5	8.0	SW.	
Fall mean.....	56	69	.....	46	.....	.....	.....	9.2	14	7.0	11.1	2.5	.....	SW.
Annual mean.....	54	65	111	44	-20	.....	.....	39.4	68	27.9	57.1	29.4	13.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 29, 31; Feb. 1, 8-13	June 3-6, 21-23; July 4, 7, 12-15, 25-29; Aug. 2-4, 11, 12, 19, 21, 23-27; Sept. 1-8.	1902	Feb. 5.....	June 11, 12, 13, 15; July 5, 6, 15, 17, 26, 27; Aug. 3.
1900	Jan. 31; Feb. 17.....	June 12, 13, 29; July 2-5, 14, 15, 20, 23, 30, 31; Aug. 1-4, 6-11, 15, 17-21; Sept. 6, 8.	1903	Jan. 12, 13; Feb. 17-20	July 3, 7, 10, 11, 25-28; Aug. 3, 5, 24-26.
1901	Dec. 15-21.....	June 11, 12, 16, 22-30; July 1-4, 10-16, 18-30; Aug. 2, 7-9, 11-13, 15; Sept. 6, 9.			

INDIANA.

Southern Section: CRAWFORD COUNTY. Station: MARENGO.

J. M. JOHNSON Observer.

[Established October, 1882. Latitude, 38° 24' N. Longitude, 86° 24' W. Elevation, 363 feet.]

This station is in the unglaciated portion of the State, the sinkhole district of the limestone belt of Crawford and Harrison counties, and is surrounded by a rugged country. The valleys are narrow, and the intervening ridges and hills range from 50 to 200 feet above the beds of the small streams that drain them.

The station instruments, consisting of two thermometers, a maximum and a minimum, in a regulation instrument shelter, and a standard rain gage, are exposed in the yard of the observer's residence, the latter being located in a valley.

Prior to April, 1896, monthly mean temperatures were obtained from readings of the ordinary thermometer, made at 7 a. m., 2 p. m., and 9 p. m. Since April, 1896, daily readings of the maximum and minimum thermometers have been used in obtaining the monthly means.

Monthly and annual mean temperatures, absolute maximum and minimum, and highest and lowest monthly means, monthly mean precipitation, and total amounts for the driest and wettest years are for the period of observation 1882 to 1903; mean of the maxima and mean of the minima temperature, for the period 1896 to 1903; the remaining data are for various periods of observation included between 1884 and 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	Average depth.	Greatest depth in 24 hours.	
December.....	36	43	71	27	-19	51	27	4.2	8	4.5	2.6	3.4	10.0	NW.
January.....	33	43	69	24	-18	46	24	4.9	9	1.9	9.7	5.3	9.0	SW.
February.....	35	40	73	22	-28	45	24	6.5	9	2.1	7.7	5.6	9.0	NW.
Winter mean.....	35	42		24				15.6	26	8.5	20.0	14.3		NW.
March.....	44	56	81	35	0	50	39	5.3	10	3.5	16.7	4.6	9.0	SW.
April.....	56	67	91	42	19	63	49	5.4	8	3.0	8.8	0.3	1.6	SW.
May.....	65	79	94	53	29	70	61	5.2	10	2.4	8.2	T.	1.0	SW.
Spring mean.....	55	67		43				15.9	28	8.9	33.7	4.9		SW.
June.....	74	85	98	61	37	78	69	5.4	9	4.8	10.5	0.0	0.0	SW.
July.....	77	90	106	65	47	81	74	4.0	7	1.0	10.9	0.0	0.0	SW.
August.....	75	88	103	63	49	80	72	4.2	7	2.7	8.2	0.0	0.0	SW.
Summer mean.....	75	88		63				13.6	23	8.5	29.6	0.0		SW.
September.....	69	82	100	54	26	72	65	4.0	6	2.4	3.5	0.0	0.0	SW.
October.....	57	71	96	44	17	62	50	3.1	6	2.7	4.6	T.	T.	SW.
November.....	45	56	80	35	5	51	40	5.4	8	1.5	6.0	0.8	2.5	SW.
Fall mean.....	57	70		44				12.5	20	6.6	14.1	0.8		SW.
Annual mean.....	56	67	106	44	-28			57.6	97	32.5	97.4	20.0	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1896	January and Febru- ary missing.	July 14, 15, 26-30; Aug. 1, 5-11, 15, 16; Sept. 10-14.	1900	Jan. 29; Feb. 17, 25...	July 4; Aug. 3, 9, 11, 20, 21; Sept. 9.
1897	Jan. 25, 26, 28-30.....	June 14, 15, 30; July 3-9; Aug. 1-4, 28, 29; Sept. 1, 7-16.	1901	Dec. 15-18, 20, 21.....	June 24, 26, 28-30; July 2, 3, 11, 15, 20-29; Aug. 8, 9.
1898	Feb. 3; Dec. 10, 14....	June 9; July 2, 3-24; Aug. 22, 23; Sept. 1-5.	1902	Feb. 18.....	June 12, 15; July 9, 17, 18; Aug. 3.
1899	Jan. 7; Feb. 1, 8-14; Dec. 29, 30.	Aug. 2, 3, 4; Sept. 5-8.	1903	Jan. 10; Feb. 19.....	July 3, 4, 8-11, 25-29; Aug. 19, 24-26; Sept. 7-9, 14.

* The measurements in early years are believed to have been in excess of the true amounts.

OHIO.

By J. WARREN SMITH,
Section Director.

OHIO.

Physical features.—Ohio lies between Lake Erie and the Ohio River and between Pennsylvania and Indiana. It is between latitude $38^{\circ} 30'$ and 42° north and longitude $80^{\circ} 30'$ and $84^{\circ} 45'$ west.

The total area is 40,760 square miles. Its breadth is 225 miles and its length 205 miles. The mean elevation above sea level is 850 feet. At least one-fourth of the State is above 1,000 feet; less than 1 square mile is above 1,500 feet. There are extensive areas in the eastern section rising from 1,100 to 1,300 feet above sea level. The highest point is Hogues Hill in west central Logan County, near Bellefontaine, 1,540 feet. Another hill near this is 1,525 feet. The lowest point is in the extreme southwest, 425 feet. It has a frontage of 230 miles on Lake Erie and 436 miles on the Ohio River. The Muskingum River is navigable for 100 miles. Ohio has no natural lakes and but few islands, those in extreme western Lake Erie.

The general surface may be termed an undulating plain, divided by a main watershed into two unequal slopes. Starting from the Indiana line at latitude $40^{\circ} 38'$ the main watershed runs first somewhat southeasterly, reaching its southerly limit in Auglaize County at latitude $40^{\circ} 20'$. It then runs in an irregular northeasterly direction to the Pennsylvania line at latitude $41^{\circ} 40'$, about 20 miles from Lake Erie. The western half of the Lake Erie watershed slopes very gently toward the lake. The eastern half is more precipitous; east of Cleveland the 1,000-foot contour line runs within less than 10 miles of the lake shore, while in the western part it does not reach north of the watershed.

The main rivers of the northern slope are the Maumee, Portage, Sandusky, Huron, Vermilion, Black, Rocky, Cuyahoga, and Grand. In the east the rivers are cut well down into narrow, deep valleys. In the west the beds are well defined, but cut down very little. It is evident that the western part of this slope was formerly covered by Lake Erie. Between the Maumee and the Sandusky rivers there is a district called the Great Black Swamp. When the country was first settled this was a great swamp, but the construction of deep and long ditches has drained the land.

The southern slope is drained by the Great Miami, Little Miami, Scioto, Hocking, Muskingum, and Mahoning rivers. Most of the eastern part of this slope is drained by the Muskingum, as the rivers that flow into the Ohio north of the Muskingum at Marietta drain but little territory. The northern part of the Muskingum watershed consists of high, rolling land, with the river valleys narrow and well cut down. As the Ohio River is approached the valleys are deeper and larger and the bluffs higher, smaller, and more precipitous. The same is true in the western part of the southern slope near the Ohio, but away from this river the river beds are larger and the whole country more nearly level.

The condition of high plateaus, ridges, and bluffs, and the narrow and deep river valleys in the eastern and extreme southern parts of the State are favorable for good air drainage away from the higher land. In the valleys, however, especially when they are pocket-shaped, the temperature falls very low during anticyclonic conditions, and late spring and early fall frosts are apt to be experienced.

The State has no extensive natural topographical divisions, but because the climate of the northern sections differs from the southern and because of the difference in latitude the State has been divided into three nearly equal sections by irregular lines following county lines across the State from west to east. They are designated "northern," "middle," and "southern" sections.

The stations selected for the following tables typify the climatic conditions of the State as regards topography, so far as possible. Cleveland, Sandusky, and Toledo are on the lake and subject to its influence; Wauseon and Ottawa are in the level prairie country of the northwest; Hiram and Bangorville are at the highest elevations and near the crest of the watershed; Canton and Marion are in the upper valleys south of the watershed and are controlled in part by plateau and in part by valley conditions. Columbus and Dayton are typical of large interior valley condition in the west; Cambridge and Coalton of narrow cup-shaped valleys in the rougher eastern districts, while McConnellsville is typical of the slopes in the east. New Alexandria is near the top of the high bluffs in the east; North Lewisburg, Clarksville, and Greenville are all on high level plains in the western part of the State, while Cincinnati, Portsmouth, and Marietta give a good idea of the climatic conditions of the Ohio Valley.

Temperature.—The normal annual temperature for the State as a whole, using all stations having a record of ten years or more reporting to the Columbus office, is 50.9° ; for the northern section, 49.5° ; the middle, 50.7° ; for the southern, 53.5° .

The lowest annual mean temperature is in the extreme northwest and on the northern slope of the Erie watershed in the northeast; the highest is in the Ohio Valley in the southern part of the State.

The warmest month is July; the coldest is January, except at the stations on the highest points of land, where January and February are about the same, and those in the cup-shaped valleys where available records indicate that February is coldest.

The highest mean maximum temperatures (annual) are in the valleys in the south (67° , 66° , 65°) and the lowest on the lake (57° , 58°). The highest mean minimum temperatures (annual) are in the extreme south (45° , 47°), with the lake stations fairly high (42° , 43°), and the lowest in the extreme northwest (38°), on the highlands of the watershed (39° , 40°) and in the pocket-shaped valleys in the southeast (39° , 40°).

The difference between the annual mean maximum and the annual mean minimum temperatures is greatest in the small valleys in the southeast (24°, 26°) and least along the lake (15°).

The highest temperature reported is 108°, at Dayton; the lowest maxima are 96° at Hiram, 98° at Canton, and 99° at Cambridge, Cleveland, and Toledo. The lowest temperatures reported are in the valleys in the south, -38° at Coalton, -33° at Cambridge and in the extreme northwest, -32° at Wauseon. Sandusky and Toledo have the highest minima, -16°. Cincinnati has only 17° below zero and Portsmouth 18° below.

The absolute range in temperature is greatest in the small valleys in the southeast (142° at Coalton) and in the extreme northwest (136° at Wauseon) and at Dayton, 136°. The least range is along the lake, 115° at Toledo, 116° at Sandusky and Cleveland, and on the highlands in the northeast, 118° at Hiram and Canton.

The stations with the greatest annual average number of days above 90° are in the south central portion—Coalton 39, Portsmouth 37, Dayton 36. Those with the least number above 90° are along the lake—Cleveland 4, Sandusky 9, and Hiram 5.

The stations with the greatest annual average number of days with the temperature below 32° are in the north central portion—Bangorville 134, Cambridge 133, Wauseon 130. Those with the least are in the Ohio Valley—Cincinnati 77, Marietta 87, Portsmouth 89. The lake stations have over 100. It is an interesting fact that while over the most of the State the lowest temperature is with a light northwesterly or northerly wind, along the eastern lake shore the coldest is always after the wind has shifted to southerly.

Frost.—The average date of the last killing frost in the spring is earliest in the extreme south—April 11 to 13—and along the lake—April 14 to 16. It is latest in the extreme northwest—May 12—on the highlands in the central portion, May 4, and in the valleys in the southeast, May 2. The date of the latest killing frost in the spring runs very uniformly from the south to the northwest.

The average date of the first killing frost in the fall is earliest in the extreme northwest (September 25), and then in the narrow valleys in the southeast (September 28), and latest along the lake (October 26 to 31). The earliest killing frost in the fall is September 2, at Wauseon. At Cleveland and Hiram the date of the earliest killing frost is October 2 and at Sandusky October 8.

Precipitation.—The normal annual precipitation for the State is 38.4 inches. For the northern section it is 35; for the middle 36.4, and for the southern 36.6. The greatest average annual fall for the stations in the following tables is 42.1 inches, at Marietta; the least, 30.8, at Toledo. In general, the heaviest is in the southeast and the least in the northwest.

The greatest number of rainy days is on the lake and the least in the southeast. The greatest number of cloudy days is also along the lake and in the northeast, and the least in the east-central and the extreme western portion. The greatest number of clear days is in the southeast and the least in the north.

Fog.—The station reporting the greatest annual average number of days when fog is noticed is Portsmouth, with 37. Wauseon has 31 and Bangorville 16. The observer at Clarksville reports that they seldom have fog, and the observers at North Lewisburg and Hiram report an average of only one day.

Snow.—The greatest average annual snowfall reported is 47.4 inches, at Hiram; the least 15.4 inches at Clarksville. In general, the least snowfall is in the southwest and the greatest in the northeast. The heaviest fall is not at the crest of the watershed, but about half way between it and the lake in Ashtabula, Geauga, and southern lake counties.

Hail.—The average number of days with hail each year is very small. The observer at Clarksville reports that he has lived on his farm since 1852 and that there has not been a damaging hail storm in that period. Several of the observers report only an average of one a year, while the greatest number is three at Wauseon and Bangorville.

Thunderstorms.—The greatest average annual number of thunderstorms reported is 37 at Wauseon and 34 at Bangorville. In general, the western part of the State suffers more than the eastern from damaging thunderstorms and high winds.

Tornadoes.—Reports of tornadoes are frequently heard from the western counties, but investigation usually demonstrates that the damage is not great and has been caused by squall or straight-line winds.

Wind.—The prevailing wind direction at Cleveland and Cincinnati is from the southeast. In general, the direction is from the southwest or west.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (see Portsmouth)...		Southern		Defiance (see Wauseon)...		Northern	
Allen (see Ottawa)...		Northern		Erie	Sandusky	do.	719
Ashtabula (see Bangorville)...		do.		Fairfield (see Columbus)...		Southern	
Ashtabula (see Hiram and Cleveland)...		do.		Payette (see Clarksville)...		do.	
Athens (see McConnellsville)...		Southern		Franklin	Columbus	Central	728
Auglaize (see Greenville)...		Central			Wauseon	Northern	717
Belmont (see New Alexandria)...		do.		Gallia (see Portsmouth)...		Southern	
Brown (see Cincinnati)...		Southern		Geauga (see Hiram)...		Northern	
Butler (see Dayton)...		do.		Greene (see Clarksville)...		Southern	
Carroll (see Cambridge)...		Central		Guernsey	Cambridge	Central	729
Champaign	North Lewisburg	do.	727	Hamilton	Cincinnati	Southern	736
Clark (see North Lewisburg)...		do.		Hancock (see Ottawa)...		Northern	
Clermont (see Cincinnati)...		Southern		Hardin (see Marion)...		do.	
Clinton	Clarksville	do.	734	Henry (see Ottawa)...		Northern	
Columbiana (see Canton)...		Northern		Highland (see Clarksville)...		Southern	
Coshocton (see McConnellsville)...		Central		Hocking (see Coalton)...		do.	
Crawford (see Marion)...		Northern		Holmes (see Canton)...		Central	
Cuyahoga	Cleveland	do.	720	Huron (see Sandusky)...		Northern	
Darke	Greenville	Central	726	Jackson	Coalton	Southern	735
				Jefferson	New Alexandria	Central	730
				Knox (see Bangorville)...		do.	

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Lake (see Cleveland)		Northern		Pike (see Portsmouth)		Southern	721
Lawrence (see Portsmouth)		Southern		Portage	Hiram	Northern	
Licking (see Columbus)		Central		Preble (see Greenville)		Southern	
Logan (see North Lewisburg)		do.		Putnam	Ottawa	Northern	722
Lorain (see Sandusky)		Northern		Richland	Bangorville	do.	724
Lucas	Toledo	do.	718	Ross (see Portsmouth)		Southern	
Madison (see Columbus)		Central		Sandusky (see Sandusky)		Northern	
Mahoning (see Canton)		Northern		Scioto	Portsmouth	Southern	737
Marion	Marion	Central	723	Seneca (see Ottawa)		Northern	
Medina (see Canton)		Northern		Shelby (see Greenville)		Central	
Meigs (see Marietta)		Southern		Stark	Canton	Northern	725
Mercer (see Greenville)		Central		Summit (see Hiram)		do.	
Miami (see Dayton)		do.		Trumbull (see Hiram)		do.	
Monroe (see Marietta)		Southern		Tuscarawas (see Cambridge)		Central	
Montgomery	Dayton	do.	731	Union (see Columbus)		do.	
Morgan	McConnellsville	do.	732	Van Wert (see Ottawa)		Northern	
Morrow (see Bangorville)		Central		Vinton (see Coalton)		Southern	
Muskingum (see McConnellsville)		do.		Warren (see Clarksville)		do.	
Noble (see Cambridge)		Southern		Washington	Marietta	do.	733
Ottawa (see Toledo)		Northern		Wayne (see Canton)		Northern	
Paulding (see Ottawa)		do.		Williams (see Wauseon)		do.	
Perry (see McConnellsville)		Southern		Wood (see Toledo)		do.	
Pickaway (see Columbus)		do.		Wyandot (see Marion)		do.	

STATE SUMMARY.

Station.	Num-ber.	Temperature.						Average num-ber days with—	
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absolu-te maxi-mum.	Date.	Absolu-te mini-mum.	Date.	
		° F.	° F.	° F.	° F.				Maxi-mum above 90°. Mini-mum below 32°.
Wauseon	1	48	60	38	104	July, 1874	-32	January, 1884	26 130
Toledo	2	50	58	42	99	July, 1887	-16	January, 1897	9 114
Sandusky	3	50	58	43	100	July, 1897	-16	January, 1879	9 107
Cleveland	4	49	57	42	99	August, 1881	-17	January, 1873	4 109
Hiram	5	48	58	40	96	July, 1897	-22	February, 1899	57 128
Ottawa	6	51	62	41	102	July, 1901	-20	do.	30 129
Marion	7	51	63	40	102	do.	-22	do.	32 121
Bangorville	8	50	62	39	101	August, 1891	-26	do.	22 134
Canton	9	50	60	40	98	June, 1895	-20	do.	14 123
Greenville	10	50	60	42	101	July, 1901	-20	do.	108
North Lewisburg	11	51	61	40	103	do.	-24	January, 1884	25 122
Columbus	12	52	61	43	104	do.	-20	do.	18 98
Cambridge	13	50	63	39	99	July, 1895	-33	February, 1899	20 133
New Alexandria	14	51	62	42	100	July, 1901	-23	do.	17 116
Dayton	15	53	65	42	108	do.	-28	do.	36 102
McConnellsville	16	52	64	40	102	July, 1887	-29	do.	25 116
Marietta	17	53	64	45	101	July, 1894	-22	do.	87
Clarksville	18	53	64	43	104	July, 1901	-22	do.	26 107
Coalton	19	52	66	40	104	do.	-38	do.	39 123
Cincinnati	20	55	64	47	105	July, 1901	-17	February, 1899	25 80
Portsmouth	21	56	67	45	106	July, 1897	-18	do.	37 89

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Wauseon	1	Sept. 25	May 12	Sept. 2	June 1	Inches. 37.7	Inches. 11.3	Inches. 10.4	Inches. 8.2	Inches. 7.8
Toledo	2	Oct. 15	Apr. 24	Sept. 9	May 29	30.8	7.7	9.4	7.4	6.3
Sandusky	3	Oct. 26	Apr. 14	Oct. 8	May 2	34.7	8.3	10.9	8.0	6.9
Cleveland	4	Oct. 31	Apr. 16	Oct. 2	May 22	35.6	8.5	10.2	9.0	7.9
Hiram	5	Oct. 14	Apr. 28	do.	May 21	39.7	10.5	11.1	9.3	8.8
Ottawa	6	Oct. 2	Apr. 27	Sept. 14	May 22	33.2	8.9	10.0	7.2	7.1
Marion	7	Sept. 30	do.	do.	May 17	35.4	9.3	10.6	8.4	7.1
Bangorville	8	Oct. 1	May 4	Sept. 12	May 31	39.2	10.7	11.2	8.3	9.0
Canton	9	Oct. 4	Apr. 25	Sept. 15	May 21	39.1	10.5	11.6	7.9	9.1
Greenville	10	Oct. 13	Apr. 22	Sept. 24	May 17	36.6	10.4	10.3	8.2	7.7
North Lewisburg	11	do.	May 4	Sept. 6	May 29	39.7	10.1	11.5	8.9	9.2
Columbus	12	Oct. 16	Apr. 16	Sept. 21	May 17	37.2	10.0	10.3	8.0	8.9
Cambridge	13	Sept. 28	May 2	Sept. 14	May 26	38.5	10.2	12.1	7.6	8.6
New Alexandria	14	Oct. 8	Apr. 27	Sept. 27	May 25	40.9	10.5	11.7	7.9	10.8
Dayton	15	Oct. 9	Apr. 17	Sept. 19	May 5	36.6	9.8	9.9	8.0	8.9
McConnellsville	16	Oct. 10	Apr. 27	Sept. 27	May 22	40.7	9.9	12.9	8.2	9.7
Marietta	17	Oct. 21	Apr. 13	Sept. 28	do.	42.1	10.5	12.8	9.1	9.7
Clarksville	18	Oct. 9	Apr. 11	Sept. 14	May 7	38.7	10.7	11.0	7.8	9.2
Coalton	19	Oct. 7	Apr. 12	do.	May 10	36.2	9.9	10.6	6.7	9.0
Cincinnati	20	Oct. 19	Apr. 11	Sept. 30	Apr. 24	38.4	9.9	10.9	7.9	9.7
Portsmouth	21	Oct. 5	Apr. 24	Sept. 3	May 30	40.4	10.4	11.5	8.5	10.0

OHIO.

Northern Section (Western part); FULTON COUNTY. Station: WAUSEON.

THOS. MIKESELL, Observer.

[Established November, 1860. Latitude, 41° 35' N. Longitude, 84° 07' W. Elevation, 780 feet.]

Wauseon is in central Fulton County on a nearly level plain that slopes very gently toward Lake Erie. It is 225 feet above the lake. The highest elevations in that vicinity are not more than 50 feet above the general level.

Lack of space prevents giving a full account of the thermometers used and the hours of observation; suffice it to say that the instruments were standard and that up to 1882 three observations were made daily, at 7 a. m., 1 p. m., and 9 p. m. or hours very nearly corresponding thereto.

The mean temperature data were taken entirely from these tri-daily readings for the following tables. The extremes of temperature are from maximum and minimum thermometers since November 1, 1882, but previous to that date from frequent eye observations. The rain gage has been well exposed.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for five years; the remaining temperature and precipitation data are for thirty-four years, extending from January 1, 1870, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 23	° F. 33	° F. 70	° F. 18	° F. -32	° F. 39	° F. 17	In. 2.5	15	In. 1.9	In. 2.1	In. 10.9	In. 10.0	SW.
January.....	23	34	70	17	-32	38	12	2.3	15	2.4	1.4	8.0	11.0	W.
February.....	26	31	64	12	-24	35	11	3.0	14	2.0	3.6	12.4	17.0	W.
Winter mean.....	26	33		16				7.8	44	6.3	7.1	31.3		W.
March.....	33	45	80	26	-17	43	24	3.6	14	3.6	5.5	8.7	12.1	W.
April.....	47	61	91	37	5	55	39	3.3	12	2.3	5.2	1.0	15.7	NE.
May.....	59	74	103	48	21	66	52	4.4	13	3.4	11.4	T.	6.5	SW.
Spring mean.....	46	60		37				11.3	39	9.3	22.1	9.7		W.
June.....	69	80	100	56	34	73	63	4.0	13	3.5	8.6	0.0	0.0	SW.
July.....	73	87	104	61	41	77	68	3.8	11	0.9	3.0	0.0	0.0	SW.
August.....	70	86	102	59	38	75	66	2.6	9	2.0	2.4	0.0	0.0	SW.
Summer mean.....	71	84		59				10.4	33	6.4	14.0	0.0		SW.
September.....	63	77	100	52	25	71	57	2.5	10	0.8	4.6	0.0	0.0	S.
October.....	50	68	94	43	12	59	44	2.4	11	1.9	0.4	T.	8.0	SW.
November.....	36	49	76	32	-8	46	28	3.3	13	3.9	4.4	4.1	10.0	SW.
Fall mean.....	50	65		42				8.2	34	6.6	9.4	4.1		SW.
Annual mean.....	48	60	104	38	-32			37.7	150	28.6	52.6	45.1	17.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 29-31; Feb. 1, 8-14; Dec. 30, 31.	June 6, 22; July 3, 4; Aug. 11, 18, 19, 24.	1902	Jan. 28; Feb. 3-5, 8, 14, 19, 20; Dec. 14, 27.	None.
1900	Jan. 29, 31; Feb. 1, 2, 17, 25, 27; Mar. 17.	Aug. 5-11, 19; Sept. 6, 10, 11.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 14, 30.	July 2, 3, 5, 9, 10; Aug. 25.
1901	Jan. 2, 3, 31; Feb. 2, 7, 11, 13-15, 23, 27, 28; Mar. 6; Dec. 15-17, 19-21.	June 12, 24; July 1, 2, 4, 10, 16-18, 20-22, 24, 27, 28; Aug. 9, 14; Sept. 7.			

OHIO.

Northwestern District: LUCAS COUNTY. Station: TOLEDO.

W. S. CURRIER, Local Forecaster.

[Established by Signal Service in November, 1870. Latitude, 41° 40' N. Longitude, 83° 34' W. Elevation, 596 feet.]

This station is located near the center of the city and about two blocks from the west bank of the Maumee River. It is about 5 miles south of Maumee Bay, which is an extension of Lake Erie on its southwest extremity. The country about the station and city is rolling, but not hilly.

This office was located in the Chamber of Commerce Building, southeast corner of Madison and Summit streets, from April 1, 1871, to January 31, 1888, and it has been in the Government building, southeast corner of Madison and St. Clair streets, since February 1, 1888.

The thermometers are exposed in a standard Weather Bureau shelter on the roof of the Government building. They are 120 feet above the ground. The rain and snow gages are on the same roof, on a platform that is raised only slightly above the roof. The tops of the gages are 112 feet above ground. The roof is higher than that of any other building within one and one-half blocks of it, and the exposure of the thermometers is good, but the exposure of the rain and snow gages is not satisfactory.

Tabulated data are from the following periods of observation: Temperature, thirty years, 1874-1903; snowfall, nineteen years, 1885-1903; humidity and wind direction, fifteen years, 1889-1903; sunshine, four years, 1900-1903; remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 30	° F. 37	° F. 70	° F. 24	° F. -15	° F. 41	° F. 21	In. 2.3	13	In. 1.5	In. 4.7	In. 7.6	In. 9.6	P.ct. 84	Gr.s. 1.55	P.ct. 77	Gr.s. 1.62	73	26	SW.
January.....	26	33	71	19	-16	40	16	1.9	13	1.5	0.5	8.6	9.8	85	1.26	79	1.4	101	34	SW.
February.....	27	34	67	20	-16	39	17	2.1	12	1.9	4.3	8.0	19.0	84	1.14	77	1.36	140	47	W.
Winter mean.....	28	35	.....	21	.....	.....	.....	6.3	38	4.9	9.5	24.2	.....	84	1.32	78	1.46	105	36	SW.
March.....	35	43	76	27	-3	44	28	2.2	13	1.3	1.9	5.1	8.4	84	1.54	72	1.78	178	48	W.
April.....	48	56	88	39	12	55	40	2.2	11	1.8	1.8	1.7	9.1	75	2.47	64	2.61	213	53	NE.
May.....	59	68	95	50	30	67	53	3.3	12	5.4	0.4	T.	T.	74	3.73	63	3.89	280	62	SE.
Spring mean.....	47	56	.....	39	.....	.....	.....	7.7	38	8.5	4.1	6.8	.....	76	2.58	63	2.76	224	54	W.
June.....	69	77	99	60	41	73	65	3.4	11	1.8	7.4	0.0	0.0	76	5.29	65	5.33	281	62	W.
July.....	73	82	99	64	49	78	68	3.3	10	0.4	5.4	0.0	0.0	74	5.73	61	5.85	335	72	SW.
August.....	71	79	97	62	44	77	67	2.7	9	0.6	0.9	0.0	0.0	77	5.38	64	5.62	269	63	SW.
Summer mean.....	71	79	.....	62	.....	.....	.....	9.4	30	2.8	13.7	0.0	.....	76	5.47	63	5.60	295	66	SW.
September.....	64	73	95	56	30	71	59	2.4	9	2.5	5.3	0.0	0.0	79	4.40	66	4.63	228	61	SW.
October.....	53	61	90	45	21	61	46	2.3	10	1.7	8.5	T.	T.	80	2.92	68	3.16	201	59	SW.
November.....	40	47	74	33	5	48	34	2.7	12	1.0	4.7	2.0	3.0	82	2.00	73	2.09	109	37	SW.
Fall mean.....	52	60	.....	45	.....	.....	.....	7.4	31	5.2	18.5	2.0	.....	80	3.11	69	3.29	179	52	SW.
Annual mean.....	50	58	99	42	-16	.....	.....	30.8	135	21.4	45.8	33.0	19.0	79	3.12	69	3.28	201	52	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 25; Feb. 24.....	June 10-12, 16, 21-24, 29, 30; July 1, 11-13, 16-19, 26, 27; Aug. 1, 7, 8, 29; Sept. 2, 3.	1899	Jan. 29, 31; Feb. 1, 8-13, Dec. 30.	June 4, 5, 22; July 2-4, 21; Aug. 11, 12, 19, 20; Sept. 7.
1895	Jan. 12, 13, 28, 31; Feb. 2, 5-9, 11, 12.	May 29-31; June 1-3, 25; July 16, 19; Aug. 9, 10, 17; Sept. 10-12, 19-22.	1900	Jan. 29, 31; Feb. 1, 17, 24, 25; Mar. 17.	July 4, 5, 7, 15; Aug. 5-11, 19, 20; Sept. 1, 6, 10, 11, 25.
1896	Jan. 4, 5; Feb. 17, 20.	July 13, 29; Aug. 5, 8-11.	1901	Feb. 23; Dec. 16, 19, 20, 21.	June 27, 30; July 1, 2, 4, 5, 10, 16, 17, 20, 21, 24, 27, 28, 30; Aug. 9.
1897	Jan. 24-28.....	June 15, 29; July 2-5, 8-10; Sept. 8-10, 13, 15, 16; Oct. 1.	1902	Feb. 3-5.....	May 19; June 15; July 4-7, 17, 26.
1898	Feb. 1, 3.....	June 24, 30; July 1-3, 7, 8, 15, 17, 27; Aug. 23, 30, 31; Sept. 1-3.	1903	Jan. 12, 13; Feb. 17-19; Dec. 14.	July 1-4, 8-10, 25; Sept. 16.

OHIO.

Lake District: ERIE COUNTY. Station: SANDUSKY.

E. H. NIMMO, Observer.

[Established by Signal Service August 1, 1877. Latitude, 41° 25' N. Longitude, 82° 40' W. Elevation, 506 feet.]

The city of Sandusky is situated on the south shore of Sandusky Bay, about 3 miles from its entrance. The land in the immediate vicinity is level.

The station was established at the West House, corner of Columbus avenue and Water street, August 1, 1877, and was removed to its present location, custom-house, corner of Columbus avenue and Market street, April 1, 1888.

The thermometers are exposed on the roof of the building in a shelter of standard Weather Bureau pattern. The height of the thermometers above the ground is 62 feet and above the roof 10 feet. The rain gage is 55 feet above the ground.

The snowfall data are from twenty years, the relative humidity at 8 a. m. from sixteen years, and at 8 p. m. from fourteen years. Remainder of tabulated data is from the full period of observation, twenty-six years, August 1, 1877, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 32	° F. 38	° F. 70	° F. 25	° F. -13	° F. 42	° F. 23	In. 2.3	13	In. 3.6	In. 6.3	In. 6.0	In. 8.4	P. ct. 79	Grs. 1.53	P. ct. 74	Grs. 1.62	SW.
January.....	27	33	69	20	-16	41	17	2.0	14	2.4	1.3	8.3	14.0	82	1.33	78	1.14	SW.
February.....	28	35	70	21	-15	38	18	2.6	13	1.3	3.2	6.9	10.1	81	1.26	77	1.43	SW.
Winter mean.....	29	35	.....	22	.....	.....	.....	6.9	40	7.3	10.8	21.2	.....	81	1.37	76	1.40	SW.
March.....	35	42	77	28	-3	44	27	2.6	13	2.2	2.8	3.7	5.3	78	1.65	74	1.82	SW.
April.....	48	55	89	40	14	55	43	2.4	12	1.4	2.5	1.7	14.0	72	2.46	67	2.55	E.
May.....	59	67	93	52	32	67	53	3.3	12	4.5	1.0	0.0	0.0	72	2.94	67	3.85	SW.
Spring mean.....	47	55	.....	40	.....	.....	.....	8.3	37	8.1	6.3	5.4	.....	74	2.35	69	2.74	SW.
June.....	69	77	96	61	40	73	63	4.0	12	2.3	10.1	0.0	0.0	74	5.36	69	5.69	SW.
July.....	74	82	100	66	52	78	69	3.6	9	1.0	3.9	0.0	0.0	72	5.93	65	6.08	SW.
August.....	72	79	98	64	48	76	68	3.3	9	1.2	1.0	0.0	0.0	73	5.46	66	5.80	SW.
Summer mean.....	72	79	.....	64	.....	.....	.....	10.9	30	4.5	15.0	0.0	.....	73	5.58	67	5.86	SW.
September.....	66	74	96	58	36	73	61	2.7	9	1.8	3.8	0.0	0.0	75	4.46	67	4.70	SW.
October.....	54	62	90	47	24	62	47	2.4	10	1.3	5.6	T.	T.	74	2.91	68	3.19	SW.
November.....	41	48	76	35	0	49	33	2.9	12	1.7	5.0	1.3	3.0	78	2.06	73	2.24	SW.
Fall mean.....	54	61	.....	47	.....	.....	.....	8.0	31	4.8	14.4	1.3	.....	76	3.14	69	3.38	SW.
Annual mean.....	50	58	100	43	-16	.....	.....	34.1	138	24.7	46.5	27.9	14.0	76	3.11	70	3.34	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 25; Dec. 28, 29...	June 10-12, 24, 30; July 11-13, 16, 17, 19, 27, 28; Aug. 1, 7, 8; Sept. 3, 8.	1899	Jan. 29; Feb. 1, 8-14...	June 5-7, 22; July 3, 4, 20, 21; Aug. 10, 20; Sept. 7.
1895	Jan. 12, 13, 28; Feb. 5-9.	May 29, 31; June 2, 3, 18; July 8, 19, 21; Aug. 10, 17, 23; Sept. 11, 12, 20-22.	1900	Jan. 29, 31; Feb. 1, 24, 25; Mar. 17.	June 26; July 3-7, 14-17; Aug. 5-11, 25; Sept. 1, 6, 11, 25, 26.
1896	Jan. 4, 5; Feb. 20.....	May 9; June 7, 25; July 2, 13, 29, 30; Aug. 4-6, 8-11; Sept. 10, 11.	1901	Dec. 16, 20, 21.....	June 30; July 1, 2, 4, 5, 10, 16, 17, 20, 21, 24, 27-30; Aug. 9.
1897	Jan. 24-28.....	June 15, 30; July 3-5, 10; Sept. 9, 10, 16.	1902	Feb. 3-5.....	May 22; June 15; July 4-7, 9, 17, 27.
1898	Feb. 3.....	June 11, 24, 30; July 1-3, 8, 15, 17, 18; Aug. 23, 31; Sept. 1-3.	1903	Jan. 12, 13; Feb. 17-19.	July 1, 3, 4, 8; Aug. 25; Sept. 14, 15.

OHIO.

Northern Slope: CUYAHOGA COUNTY. Station: CLEVELAND.

JAMES KENEALY, Local Forecaster.

[Established by Signal Service in October, 1870. Latitude, 41° 30' N. Longitude, 81° 42' W. Elevation, 659 feet.]

The station is located in the Society for Savings building, eleven stories in height. It is near the center of the business section of the city, about 2,000 feet from the lake shore at its nearest point and nearly a mile east of the mouth of the Cuyahoga River.

The thermometers are exposed in a standard shelter at heights of 189 to 190 feet above the ground. The bottom of the instrument shelter is 12 feet above the apex of a skylight. The rain gage is exposed on the attic section of the roof, which is 2 feet higher than the main roof. The elevation of the rain gage above the main roof is 5.1 feet.

The elevations of the other roof instruments are as follows: Wind vane, 201.5 feet above ground; anemometer, 200.6 feet.

The different buildings occupied by the Signal Service and the Weather Bureau since the establishment of the station and the dates of changes were as follows:

Atwater Building, October 17, 1870; National Bank, Superior and Water streets, April 30, 1873; National Bank, Superior and Water streets, July 26, 1879; Atwater Building, July 1, 1888; Wilshire Building, October 14, 1889; Western Reserve, May 1, 1892; Society for Savings, October 1, 1896.

Tabulated data are from the following periods of observation: Snowfall, averages, nineteen years; sunshine, thirteen years; humidity, sixteen years, 1888-1903. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage possible.
												Average depth.	Greatest depth in 24 hours.							
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr s.	P. ct.	Gr s.			
December.....	31	37	68	25	-12	42	20	2.6	16	2.8	5.1	12.4	8.8	77	1.49	74	1.62	62	22	SW.
January.....	27	33	70	20	-17	40	17	2.5	17	2.4	4.4	8.9	6.0	80	1.30	75	1.33	62	27	SW.
February.....	27	34	72	20	-16	37	16	2.8	15	1.5	2.5	10.6	13.0	79	1.17	75	1.33	84	29	SW.
Winter mean.....	28	35	.....	22	.....	.....	.....	7.9	48	6.7	12.0	31.9	.....	79	1.32	75	1.43	69	26	SW.
March.....	34	42	76	27	-4	44	24	2.8	15	3.6	5.1	5.0	6.0	78	1.58	73	1.86	155	40	W.
April.....	46	55	87	39	15	53	40	2.3	12	1.0	2.9	2.8	7.4	74	2.44	66	2.51	180	49	W.
May.....	58	66	92	50	28	66	52	3.4	13	3.1	3.0	0.0	0.0	75	3.76	66	3.79	248	52	SE.
Spring mean.....	46	54	.....	39	.....	.....	.....	8.5	40	7.7	11.0	7.8	.....	76	2.59	68	2.72	194	47	W.
June.....	67	75	96	59	38	70	58	3.8	12	1.5	2.7	0.0	0.0	75	5.09	67	5.35	270	60	SE.
July.....	72	80	97	64	48	76	68	3.6	11	3.9	8.0	0.0	0.0	69	5.51	64	5.99	310	66	SE.
August.....	70	77	99	62	46	77	66	2.8	10	0.6	2.2	0.0	0.0	76	5.50	66	5.80	248	60	SE.
Summer mean.....	70	77	.....	62	.....	.....	.....	10.2	33	6.0	12.9	0.0	.....	73	5.37	66	5.71	276	62	SE.
September.....	64	72	98	56	36	72	60	3.5	11	1.5	9.3	0.0	0.0	78	4.33	69	4.84	210	59	SE.
October.....	53	61	87	45	24	61	47	2.7	12	1.8	5.6	0.3	5.1	76	3.10	69	3.23	186	50	SE.
November.....	40	47	74	35	0	49	32	2.8	15	0.6	2.8	2.5	7.0	76	2.09	73	2.24	60	25	SW.
Fall mean.....	52	60	.....	45	.....	.....	.....	9.0	38	3.9	17.7	2.8	.....	77	3.17	70	3.44	152	45	SE.
Annual mean.....	49	57	99	42	-17	.....	.....	35.6	159	24.3	53.6	42.5	13.0	76	3.11	70	3.32	173	45	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Dec. 29.....	June 24, 30; July 11-13, 17, 19, 26, 27; Aug. 1; Sept. 3.	1899	Jan. 31; Feb. 1, 8-13..	June 5, 7, 22; July 5; Sept. 7.
1895	Jan. 12, 13; Feb. 5-9..	June 3; July 19; Aug. 17; Sept. 12, 20, 22.	1900	Jan. 29, 31; Feb. 1, 24, 25, 27; Mar. 17.	July 4, 17; Aug. 10, 11; Sept. 11.
1896	Jan. 4; Feb. 17, 20....	July 29; Aug. 5, 6, 8-10.	1901	Dec. 16, 20, 21; Mar. 6.	June 30; July 1, 2, 5, 21, 27-29; Aug. 9.
1897	Jan. 24-28.....	July 3-5, 10.	1902	Feb. 3-5.....	July 7, 17, 27.
1898	Feb. 2, 3.....	July 2, 3; Aug. 23; Sept. 3.	1903	Jan. 12, 13; Feb. 17-19.	None.

OHIO.

Northern Section (Eastern Part): PORTAGE COUNTY. Station: HIRAM.

GEO. H. COLTON, Observer.

[Established October, 1883. Latitude, 41° 19' N. Longitude, 81° 09' W. Elevation, 1,260 feet.]

Hiram is in northern Portage County, on a high ridge or hill about on the main watershed. The station is on the southwest slope near the highest point, and on the southwest side of the University square. The station is fully 250 feet higher than the Garrettsville station, the two stations being about 3 miles apart. It is typical of the high ridge or hill stations of the northeastern part of the State. Although in a village, the exposure is as if the instruments were located in the country.

Temperature records are from an exposed thermometer up to 1893, inclusive: since that time from maximum and minimum thermometers. Previous to 1888 the thermometers were exposed under a northeast piazza, but in October of that year a standard large size shelter was installed. The instruments are placed 6 feet above the ground.

The rain gage is well located; the top is about 3 feet above the ground.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for a period of five years; absolute maximum and minimum temperatures, greatest depth of snow, and frost data are for ten years; the remaining tabulated data are for twenty years, extending from October 1, 1883, to December, 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	29	34	60	19	-11	40	22	2.9	11	4.9	2.7	12.5	7.0	SW.
January.....	25	33	61	18	-19	35	16	2.9	12	3.3	4.4	10.6	5.0	SW.
February.....	24	30	65	13	-22	34	15	3.0	10	0.8	2.4	8.8	6.0	NW.
Winter mean.....	26	32		17				8.8	33	9.0	9.5	31.9		SW.
March.....	35	45	74	27	-7	44	28	3.6	11	1.6	5.1	5.6	8.0	SW.
April.....	47	57	85	38	11	53	44	3.0	9	1.8	2.7	3.2	13.0	SW.
May.....	58	71	92	49	27	66	54	3.9	10	2.0	3.0	T.	T.	SW.
Spring mean.....	47	58		38				10.5	30	5.4	10.8	8.8		SW.
June.....	67	76	93	56	36	70	62	4.2	12	1.4	3.9	0.0	0.0	SW.
July.....	71	82	96	62	45	76	66	3.6	12	2.1	3.2	0.0	0.0	SW.
August.....	69	82	93	61	46	74	66	3.3	8	3.2	6.0	0.0	0.0	SW.
Summer mean.....	69	80		60				11.1	32	6.7	13.1	0.0		SW.
September.....	63	73	93	53	33	67	58	3.2	9	4.1	2.5	0.0	0.0	SW.
October.....	51	64	85	45	24	59	44	2.5	8	1.4	5.1	0.1	T.	SW.
November.....	39	47	70	33	13	46	35	3.6	10	5.0	4.7	6.6	6.0	SW.
Fall mean.....	51	61		44				9.3	27	10.5	12.3	6.7		SW.
Annual mean.....	48	58	96	40	-22			39.7	122	31.6	45.7	47.4	13.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 11, 29, 31; Feb. 1, 8-14; Dec. 31.	Aug. 20.	1902	Jan. 28; Feb. 3-5, 19, 20.	None.
1900	Jan. 29, 31; Feb. 1, 2, 25, 27; Mar. 17.	July 5.	1903	Jan. 10, 12, 13; Feb. 17-19.	Do.
1901	Feb. 23, 24; Mar. 6; Dec. 16, 19-22.	July 1.			

OHIO.

Northern Section (Western Part): PUTNAM COUNTY. Station: OTTAWA.

JOHN T. MAIDLOW, Observer.

[Established May, 1894. Latitude, 41° 00' N. Longitude, 34° 05' W. Elevation, 720 feet.]

Ottawa is in east central Putnam County, on the Blanchard River, a branch of the Maumee. The station is in the extinct lake district of northwestern Ohio, and the country is very nearly level. This station is typical of the prairie lands of northwestern Ohio.

The station has always been located in the residence portion of the city, but most of the time the instruments have had a free exposure. Maximum and minimum thermometers have been in use from the beginning of observations. They have been exposed in a standard shelter since December, 1898. The shelter has a good location in a small side yard. The height of the thermometers above ground is 5 feet. A standard rain gage, well exposed, is installed. The height of the top of the gages above ground is 3 feet.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of the maximum and minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for five years; the remaining data are for the period of observation, October 1, 1894, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	29	35	63	19	-12	34	22	2.5	11	4.0	2.5	9.3	6.5	W.	
January.....	27	36	65	19	-18	33	21	2.3	11	3.1	4.2	7.1	10.0	NW.	
February.....	25	32	65	14	-20	32	19	2.3	9	0.4	2.3	3.5	7.0	W.	
Winter mean.....	27	34		17				7.1	31	7.5	9.0	19.9		W.	
March.....	38	49	75	29	-2	45	32	2.9	13	0.8	4.0	5.1	7.5	W.	
April.....	51	63	90	38	17	57	48	2.7	10	1.8	2.3	T.	3.0	NW.	
May.....	62	76	93	49	27	68	58	3.3	12	1.5	5.3	T.	T.	NE.	
Spring mean.....	50	63		39				8.9	35	4.1	11.6	5.1		NW.	
June.....	70	81	100	56	38	72	64	3.2	11	1.5	2.4	0.0	0.0	SW.	
July.....	75	88	102	62	42	79	71	3.7	8	1.3	3.8	0.0	0.0	SW.	
August.....	72	86	102	60	43	77	68	3.1	8	2.9	3.8	0.0	0.0	NE.	
Summer mean.....	72	85		59				10.0	27	5.7	10.0	0.0		SW.	
September.....	66	79	98	52	29	70	62	2.5	8	1.4	3.3	0.0	0.0	W.	
October.....	55	69	90	44	13	59	45	1.7	6	0.7	3.7	T.	T.	SW.	
November.....	42	51	74	32	8	48	37	3.0	10	5.5	2.7	1.9	6.0	NW.	
Fall mean.....	54	66		43				7.2	24	7.6	9.7	1.9		W.	
Annual mean.....	51	62	102	40	-20			33.2	117	24.9	40.3	26.9	10.0	W.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 29, 31; Feb. 1, 7-14.	June 6, 22; July 2-4, 21, 22, 24; Aug. 18-20; Sept. 5, 7.	1902	Jan. 28; Feb. 3-5, 8, 14, 19, 20.	None.
1900	Jan. 29, 31; Feb. 1, 17, 25; Mar. 17.	July 3-5, 7, 15; Aug. 5-11; Sept. 10.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 2, 10, 17, 30.	July 4, 8-10, 25, 28.
1901	Jan. 2, 3, 31; Feb. 2, 7, 13, 15, 28; Dec. 15-21.	June 12, 24, 25, 30; July 1, 2, 4, 15-18, 20-22, 24, 26-28, 30; Aug. 9.			

OHIO.

Central Section (northern part): MARION COUNTY. Station: MARION.

E. H. RAFFENSPERGER, Observer.

[Established October, 1891. Latitude, 40° 35' N. Longitude, 83° 10' W. Elevation, 980 feet.]

Marion is in central Marion County, on a till plain or ridge that extends northerly toward the lake and forms the watershed between the Scioto and Olentangy rivers. It is just south of the glacial ridge that forms the main watershed at this point.

The station is in the city, about two blocks from the main street. Maximum and minimum thermometers are in use. They are well exposed about 5 feet above the ground in a standard Weather Bureau shelter, which is located in a medium-sized back yard.

The gage that was in use up to August, 1903, was a small 3-inch gage. It was located on a post about 6 feet above the ground. Since then a standard gage with the top 3 feet above the ground has been in use.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers. Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction, are for five years; the remaining tabulated data are for twelve years, and are included within the period of observation, January 1, 1892, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	36	65	20	-9	34	23	2.4	9	2.8	1.6	6.8	8.2	SW.
January.....	27	37	63	21	-17	33	17	2.5	9	4.1	4.0	4.2	5.1	SW.
February.....	26	33	74	15	-22	32	20	2.2	8	0.5	3.3	5.8	8.0	W.
Winter mean.....	28	35		19				7.1	26	7.4	8.9	16.8		SW.
March.....	39	49	83	30	-2	46	32	2.9	10	0.4	6.7	3.4	6.0	W.
April.....	51	62	89	39	18	57	48	3.0	8	0.1	3.0	0.1	0.8	SW.
May.....	62	77	97	50	28	68	57	3.4	10	1.5	3.8	T.	T.	SW.
Spring mean.....	51	63		40				9.3	28	2.0	13.5	3.5		SW.
June.....	70	82	99	57	35	73	65	4.1	10	4.1	3.2	0.0	0.0	SW.
July.....	74	89	102	62	42	80	71	3.8	8	2.2	2.2	0.0	0.0	SW.
August.....	72	88	101	59	42	77	69	2.7	7	1.8	4.2	0.0	0.0	NE.
Summer mean.....	72	86		59				10.6	25	8.1	9.6	0.0		SW.
September.....	66	80	100	53		70	62	2.7	8	2.6	1.2	0.0	0.0	NW.
October.....	55	69	91	44	15	62	46	2.7	6	0.9	4.2	T.	T.	SW.
November.....	41	52	76	30	7	49	36	3.0	7	3.7	3.2	0.9	4.5	NW.
Fall mean.....	54	67		42				8.4	21	7.2	8.6	0.9		NW.
Annual mean.....	51	63	102	40	-22			35.4	100	24.7	40.6	21.2	8.2	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 29, 31; Feb. 1-14; Dec. 30.	June 6, 22, 23; July 2-4, 12, 22-24; Aug. 19, 24; Sept. 3, 5, 7.	1902	Feb. 3, 5, 8, 19, 20; Dec. 31.	June 15.
1900	Jan. 29, 31; Feb. 1, 17, 25, 27; Mar. 17.	July 3, 4, 7, 15; Aug. 5-12, 14; Sept. 6.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 17, 26, 28, 30.	July 4, 9, 25, 28; Aug. 22-25; Sept. 3, 15
1901	Jan. 2, 31; Feb. 2; Mar. 6; Dec. 15, 16, 20-22.	June 12, 30; July 1, 2, 16, 17, 20-24, 26-30; Aug. 8, 9, 13, 29.			

OHIO.

Northern Section (south central part): RICHLAND COUNTY. Station: BANGORVILLE.

S. M. PAINTER, Observer.

[Established July, 1886. Latitude, 40° 36' N. Longitude, 82° 30' W. Elevation, 1,380 feet.]

This station is in extreme southern Richland County, in the open country, about 1 mile from Bangorville. It is on a table-land or ridge on the old till plain just south of the main glacial ridge. It is not far south of the main watershed and is on a ridge between two branches of the Walhonding River. The station is typical of the highest ridges or table-lands in north central Ohio.

Maximum and minimum thermometers are in use. They were exposed from the establishment of the station until March, 1898, in a homemade shelter built after the Signal Service standard. A standard Weather Bureau shelter has been in use since that date. It is located north of the house, 4 feet above the ground, with free air circulation.

The rain gauge is well exposed in a large open space 4 feet above the ground.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of maximum and mean of minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction, are for five years only; the remaining data are for the period of observation, July 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	36	65	18	-13	41	22	2.8	10	3.0	3.0	7.7	8.0	SW.
January.....	26	35	65	17	-20	36	17	3.1	9	2.7	5.1	7.2	5.0	SW.
February.....	26	32	66	15	-26	37	17	3.1	10	2.8	3.1	6.6	5.0	SW.
Winter mean.....	27	34		17				9.0	29	8.5	11.2	21.5		SW.
March.....	37	49	76	28	-7	45	30	3.8	12	3.5	7.9	5.1	6.0	SW.
April.....	51	60	88	38	15	56	46	2.8	8	1.8	3.0	1.6	4.0	SW.
May.....	60	76	93	50	26	67	55	4.1	10	4.3	4.9	T.	0.5	SW.
Spring mean.....	49	62		39				10.7	30	9.6	15.8	6.7		SW.
June.....	69	80	96	56	36	73	63	4.2	11	3.8	3.5	0.0	0.0	SW.
July.....	72	86	100	62	46	78	68	3.9	11	1.6	3.5	0.0	0.0	SW.
August.....	70	85	101	59	40	76	66	3.1	6	1.6	5.0	0.0	0.0	SW.
Summer mean.....	70	84		59				11.2	28	7.0	12.0	0.0		SW.
September.....	64	78	98	52	30	69	58	2.9	7	1.8	4.0	T.	T.	SW.
October.....	51	71	93	43	18	61	45	2.0	6	2.7	3.6	T.	T.	SW.
November.....	39	51	77	30	1	46	32	3.4	8	2.3	4.6	2.7	3.0	SW.
Fall mean.....	51	67		42				8.3	21	6.8	12.2	2.7		SW.
Annual mean.....	50	62	101	39	-26			39.2	108	31.9	51.2	30.9	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 7, 28-31; Feb. 8-14; Dec. 26, 30, 31.	Sept. 3, 5, 7.	1902	Jan. 28; Feb. 3, 5, 19; Dec. 9, 31.	July 6.
1900	Jan. 1, 29, 31; Feb. 1, 2, 17, 24-27; Mar. 17.	July 3, 4; Aug. 5-10, 18.	1903	Jan. 9, 10, 12, 13; Feb. 17-19; Dec. 14, 26-28, 30.	July 9; Aug. 24.
1901	Jan. 2, 31; Feb. 7, 23, 24, 27; Mar. 6; Dec. 15-21.	June 30; July 1, 16, 21, 22, 24, 27, 28.			

OHIO.

Northern Section (eastern part): STARK COUNTY. Station: CANTON.)

CHAS. F. STOEKEY, Observer.

[Established October, 1882. Latitude, 40° 40' N. Longitude, 81° 23' W. Elevation, 1,070 feet.]

Canton is in central Stark County, on the Nimshillen Creek, a branch of the Tuscarawas River. It is south of the main watershed and just south of a large glacial ridge that runs north and south and at the edge of the unglaciated part of the State. The country is rolling. The station is located in the residence portion of the city, on the southwestern brow of a slight elevation. This station is typical of city and village conditions in the more elevated river valleys and plains in east central Ohio.

Maximum and minimum thermometers are in use. They are exposed in a standard shelter, which is attached to the north side of a shed room. The exposure is good. The height of the thermometer above the ground is 5 feet. The rain gage is well located in an open back yard. It is 23 feet north of a wall and 31 feet north of the house, the roof of which is 27½ feet higher than the top of the gage. The location is good, and the height of the top of the gage above ground is 3 feet.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometer.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for a period of five years; the absolute maximum and minimum temperatures are for twelve years. The remaining tabulated data are for the full period of observation, January 1, 1883, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	31	35	67	22	- 8	41	24	2.9	15	4.9	2.8	10.3	7.0	SW.
January.....	27	36	71	19	-13	37	18	3.0	15	4.2	4.6	9.1	4.0	S.
February.....	28	32	67	16	-20	37	17	3.2	14	1.0	2.4	8.4	5.0	SW.
Winter mean.....	29	34		19				9.1	44	10.1	9.8	27.8		SW.
March.....	38	48	77	30	- 2	46	31	3.3	15	1.8	5.8	5.1	6.5	S.
April.....	46	58	88	38	13	56	45	3.1	13	1.8	2.6	10.8	24.0	S.
May.....	60	73	94	50	28	67	56	4.1	12	1.8	4.8	0.0	0.0	N.
Spring mean.....	48	60		39				10.5	40	5.4	13.2	15.9		S.
June.....	69	79	98	57	39	73	63	4.1	14	3.1	5.0	0.0	0.0	S.
July.....	72	85	97	63	45	78	68	4.6	12	2.2	3.4	0.0	0.0	SW.
August.....	70	82	95	60	44	75	65	2.9	10	4.8	6.1	0.0	0.0	N.
Summer mean.....	70	82		60				11.6	36	10.1	14.5	0.0		SW.
September.....	64	75	93	54	31	68	59	3.0	11	1.1	2.1	0.0	0.0	S.
October.....	52	64	88	44	22	59	46	2.3	9	1.5	3.8	T.	T.	S.
November.....	40	49	75	33	7	47	36	2.6	14	3.6	3.9	2.6	3.0	S.
Fall mean.....	52	63		44				7.9	34	6.2	9.8	2.6		S.
Annual mean.....	50	60	98	40	-20			39.1	154	31.8	47.3	46.3	24.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 31; Feb. 1, 9-14.	July 4, 5, 23.	1902	Feb. 3, 5, 19, 20.	None.
1900	Jan. 29, 31; Feb. 1, 25, 27; Mar. 17.	July 4, 5, 15; Aug. 6.	1903	Jan. 12, 13; Feb. 17-19.	Do.
1901	Mar. 6; Dec. 16, 20, 21.	June 30; July 1, 2, 21, 22, 27-29.			

OHIO.

Central Section (western part): DARKE COUNTY. Station: GREENVILLE.

CHAS. L. KATZENBERGER, Observer.

[Established January, 1886. Latitude, 40° 07' N. Longitude, 84° 50' W. Elevation, 1,000 feet.]

Greenville is in central Darke County, on a branch of the Stillwater River. It is on a part of the great till plains of central and western Ohio crossed by glacial ridges. The station is typical of village or city conditions, being situated on the moderately high lands of central and western Ohio.

Maximum and minimum thermometers are in use. Until February, 1902, the thermometers were located in a shelter built in accordance with the standard regulations and located at the edge of an open veranda on the east side of a grocery store. The instruments were about 6 feet above the ground. Since that date the shelter has been attached to the north side of a residence. The exposure is fairly good. The station has always been located near the center of the city. The rain gage is well exposed in a back yard. The height of the top of the gage above ground is 3 feet.

The monthly mean temperature was obtained from readings of the maximum and minimum thermometer.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for five years. The remaining tabulated data are for eighteen years, extending from January 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	31	36	64	21	-10	43	23	2.3	9	3.3	2.9	5.2	5.0	SW.
January.....	27	36	65	21	-17	37	18	2.7	8	2.2	4.5	4.9	10.0	W.
February.....	28	32	65	16	-20	38	18	2.7	8	0.4	1.7	3.0	9.0	W.
Winter mean.....	29	35	.....	19	.....	.....	.....	7.7	25	5.9	9.1	13.1	.....	W.
March.....	38	48	73	31	-1	47	33	3.5	12	1.2	8.6	1.9	6.5	S.
April.....	50	60	85	40	18	57	47	3.0	9	1.7	2.3	0.5	10.0	N.
May.....	60	73	91	52	32	67	55	3.9	12	1.0	3.6	T.	2.0	S.
Spring mean.....	49	60	.....	41	.....	.....	.....	10.4	33	3.9	14.5	2.4	.....	S.
June.....	69	79	95	59	40	74	65	4.3	12	2.8	2.8	0.0	0.0	S.
July.....	73	85	101	64	46	79	65	2.9	9	0.7	3.9	0.0	0.0	S.
August.....	70	83	93	62	45	75	67	3.1	8	1.5	3.4	0.0	0.0	S.
Summer mean.....	71	82	.....	62	.....	.....	.....	10.3	29	5.0	10.1	0.0	.....	S.
September.....	64	76	90	54	32	68	60	2.7	7	1.3	2.8	0.0	0.0	S.
October.....	52	66	83	46	15	60	46	1.9	7	0.7	4.6	T.	6.0	S.
November.....	40	50	73	34	4	50	36	3.6	9	5.1	3.1	1.0	3.5	S.
Fall mean.....	52	64	.....	45	.....	.....	.....	8.2	23	7.1	10.5	1.0	.....	S.
Annual mean.....	50	60	101	42	-20	.....	.....	36.6	110	21.9	44.2	16.5	10.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 31; Feb. 1, 8-14; Dec. 16	None.	1902	Feb. 3, 5, 8.....	July 5, 6, 8.
1900	Jan. 29, 31; Feb. 1, 17, 25; Mar. 17.	Do.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 26, 30.	July 4, 5, 8-10, 26, 27.
1901	Jan. 2, 31; Dec. 15, 16, 20, 21.	July 22.			

OHIO.

Central Section (central part): CHAMPAIGN COUNTY. Station: NORTH LEWISBURG.

H. D. GOWEY, Observer.

[Established 1831. Latitude, 40° 11' N. Longitude, 83° 35' W. Elevation, 1,065 feet.]

North Lewisburg is in the northeastern part of the county, on the glacial ridge extending south from the easternmost high elevation in Logan County. It is on the watershed between the Scioto and Great Miami rivers.

The station has constantly been located at the same place in the village of North Lewisburg.

For many years the thermometers were exposed in a yard north of a storeroom about 6 feet above the ground in a shelter built by the observer. From 1895 until 1901 the thermometers were exposed in a shelter near an east porch. A standard shelter has been in use since 1901. The first gage put into use in 1851 was a copper tube 8 inches in diameter. In 1888 a standard gage was furnished. The rain gage is exposed in an open locality 3 feet above the ground. The monthly mean temperature and other temperature data are from the maximum and minimum thermometers since 1883; before that time they were obtained from the tri-daily readings of the exposed thermometers.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction, are for five years; the remaining tabulated data are for the period of observation, January 1, 1832, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	35	69	19	-20	41	19	3.1	9	2.1	11.2	4.8	10.0	W.
January.....	27	35	70	19	-24	41	14	3.1	10	0.7	2.8	8.4	15.0	W.
February.....	30	31	70	14	-22	42	19	3.0	7	0.4	3.2	4.9	6.7	W.
Winter mean.....	29	34		17				9.2	26	3.2	17.2	18.1		W.
March.....	38	48	79	29	-16	48	27	3.0	11	0.9	5.0	3.1	20.0	SW.
April.....	51	61	90	39	12	59	39	3.2	9	1.4	5.7	0.4	0.0	W.
May.....	60	75	97	50	27	69	55	3.9	10	2.2	4.4	T.	1.0	W.
Spring mean.....	50	61		39				10.1	30	4.5	15.1	3.5		W.
June.....	70	81	100	58	33	78	62	4.1	11	1.8	4.2	0.0	0.0	SW.
July.....	74	87	103	62	43	81	68	4.0	8	5.8	3.7	0.0	0.0	W.
August.....	72	86	103	61	34	79	64	3.4	7	4.6	3.0	0.0	0.0	W.
Summer mean.....	72	85		60				11.5	26	12.2	10.9	0.0		W.
September.....	65	78	99	53	28	73	55	3.3	7	0.8	6.0	0.0	0.0	S.
October.....	52	68	90	44	12	65	43	2.2	5	2.2	3.6	T.	3.0	N.
November.....	39	50	76	32	-11	49	29	3.4	9	0.4	5.6	2.3	5.0	W.
Fall mean.....	52	65		43				8.9	21	3.4	15.2	2.3		W.
Annual mean.....	51	61	103	40	-24			39.7	103	23.3	58.4	23.9	20.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 29, 31; Feb. 1, 8-14; Dec. 16, 30, 31.	June 7, 22, 23; July 2-4, 22, 24; Aug. 2, 4, 18, 19.	1902	Jan. 28; Feb. 3, 5, 8, 14, 19, 20; Dec. 31.	None.
1900	Jan. 29, 31; Feb. 1, 17, 25, 27; Mar. 17.	July 4, 5, 7, 15; Aug. 5, 7-12.	1903	Jan. 10, 12, 13; Feb. 17-19; Dec. 26, 28, 30.	Do.
1901	Jan. 2, 31; Feb. 2, 7, 23, 24; Mar. 6; Dec. 15-22.	June 30; July 1, 2, 16, 20, 21, 24, 27-30; Aug. 9.			

OHIO.

Central District: FRANKLIN COUNTY. Station: COLUMBUS.

J. WARREN SMITH, Section Director.

[Established by Signal Service in July, 1878. Altitude, 39° 58' N. Longitude, 83° W. Elevation, 774 feet.]

This station is located near the center of the city of Columbus and about two blocks east of the Scioto River. The city is in the Scioto Valley, which extends generally north and south, the elevation on either side of the river being slight and generally gradual.

The office was located on July 15, 1878, in Huntington Block, corner of Broad and High streets; on May 1, 1889, it was moved to the board of trade, about one-half square east; on February 1, 1893, it was moved to the Wheeler Building, one door west of its first location; on November 1, 1894, it was moved to the Eberly Block, 215 South High street, and on June 1, 1902, it was moved to the present location, Hayden Building, 16 East Broad street.

The thermometers are exposed in a standard Weather Bureau shelter, erected on the flat roof of the office building and are 173 feet above the ground. The rain and snow gages are exposed on the same roof, their tops being 170.6 feet above the ground; the exposure of all the instruments is good.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; humidity, fifteen years; sunshine, ten years. Remainder of data is from the full period of observation, twenty-five and one-half years, July 1, 1878, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.			
												Average depth.	Greatest depth in 24 hours.							
December.....	33	40	67	26	-12	45	25	2.7	14	3.6	2.3	4.0	5.5	83	1.61	76	1.80	92	SW.	
January.....	29	36	67	22	-20	44	19	3.0	15	1.5	4.7	6.7	7.2	84	1.43	77	1.56	106	SW.	
February.....	31	38	72	23	-20	41	19	3.2	13	0.9	5.9	5.7	6.1	83	1.35	74	1.56	132	W.	
Winter mean.....	31	38	.....	24	.....	.....	.....	8.9	42	6.0	12.9	16.4	.....	83	1.46	76	1.64	110	37	SW.
March.....	39	47	79	31	0	48	30	3.3	14	1.8	4.8	3.7	5.2	84	1.82	69	2.04	164	44	W.
April.....	51	61	89	42	15	59	47	2.9	12	2.2	4.9	1.4	7.7	74	2.62	61	2.86	223	59	SW.
May.....	63	73	96	53	33	70	57	3.8	13	4.2	9.6	T.	T.	75	3.89	62	4.07	271	61	SW.
Spring mean.....	51	60	.....	42	.....	.....	.....	10.0	39	8.2	19.3	5.1	.....	76	2.78	64	2.99	219	55	SW.
June.....	71	81	99	61	41	75	66	3.6	12	6.3	6.0	0.0	0.0	77	5.40	63	5.53	292	65	SW.
July.....	75	86	104	62	50	80	70	3.6	11	1.2	2.6	0.0	0.0	75	5.98	58	5.96	325	71	SW.
August.....	73	83	98	63	42	78	70	3.1	10	1.7	3.1	0.0	0.0	78	5.65	61	5.89	299	70	SW.
Summer mean.....	73	83	.....	62	.....	.....	.....	10.3	33	9.2	11.7	0.0	.....	77	5.68	61	5.79	305	69	SW.
September.....	66	77	98	56	32	74	61	2.5	9	2.1	2.9	0.0	0.0	79	4.54	61	4.56	241	65	S.
October.....	55	64	90	45	20	62	48	2.3	9	0.3	2.4	T.	1.2	80	3.04	64	3.21	209	60	SW.
November.....	42	49	77	34	-5	50	33	3.2	12	0.6	2.0	2.0	5.2	82	2.17	72	2.29	119	39	SW.
Fall mean.....	54	63	.....	45	.....	.....	.....	8.0	30	3.0	7.3	2.0	.....	80	3.25	66	3.35	190	55	SW.
Annual mean.....	52	61	104	43	-20	.....	.....	37.2	144	26.4	51.2	23.5	7.7	79	3.29	67	3.44	206	54	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 25; Dec. 29.....	July 18, 19; Aug. 9.	1900	Jan. 29, 31; Feb. 1, 25;	July 3, 4, 15, 16; Aug. 9-11, 19.
1895	Jan. 12, 13; Feb. 5, 7-9.	May 30, 31; June 1-4; July 19-21; Aug. 9, 10; Sept. 11, 18-22.		Mar. 17.	
1896	Jan. 4; Feb. 19, 20.....	July 27.	1901	Jan. 31; Dec. 15, 16,	June 29, 30; July 1, 21, 22, 24, 26-29.
1897	Jan. 24-26, 28.....	July 3-5, 8, 9; Aug. 3; Sept. 8-10, 12-16.		20, 21.	
1898	Jan. 2; Feb. 3; Dec. 14.	June 30; July 1-3, 8, 24; Sept. 3.	1902	Feb. 3.....	May 22; July 17.
1899	Jan. 31; Feb. 8-14.....	June 5, 22, 23; Aug. 19, 20; Sept. 3, 5, 7.	1903	Jan. 12, 13; Feb. 17-19.	Aug. 25.

OHIO.

Central Section (Eastern part): GUERNSEY COUNTY. Station: CAMBRIDGE.

SAMUEL MEHAFFEY, Observer.

[Established February, 1893. Latitude, 40° N. Longitude, 81° 35' W. Elevation, 803 feet.]

This station is in the unglaciated part of the State, in western Guernsey County, on a branch of Wills Creek, which is a branch of the Muskingum. The station is located in the country, 2½ miles west of the city. The whole valley from Cambridge west is pocket shaped, and the station itself is situated in a smaller pocket. The conditions are favorable for moderately high daytime temperatures, but very low night readings. This station is typical of many of the valleys in southeastern Ohio.

Maximum and minimum thermometers have been constantly in use. Previous to 1901 they were exposed under the edge of a north porch, facing the house. In that year a standard Weather Bureau shelter was furnished, and was placed in an open lot east of the house. The thermometers are about 4 feet above sod.

A 3-inch rain gage with top 5 feet above ground was in use up to 1901; since that time a standard gage has been in use, with top 3 feet above ground.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of maximum and mean of minimum temperatures, number of days with 0.01 or more precipitation, and average depth of snow are for five years only; the remaining tabulated data are for the period of observation, February 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	39	67	20	—14	33	24	3.2	8	4.1	1.8	5.4	7.0	
January.....	29	39	70	20	—27	33	21	2.6	10	4.6	1.4	4.4	7.0	
February.....	27	36	72	15	—33	33	20	2.8	7	0.5	2.4	4.6	6.0	
Winter mean.....	29	38		18				8.6	25	9.2	5.6	14.4		
March.....	40	53	81	29	—4	49	32	3.4	10	1.4	4.2	5.0	6.0	
April.....	50	63	89	37	18	55	46	3.4	7	2.2	2.9	4.4	13.0	
May.....	61	76	95	48	24	67	55	3.4	9	1.7	2.8	0.0	0.0	
Spring mean.....	50	64		38				10.2	26	5.3	9.9	9.4		
June.....	68	81	99	56	37	72	65	4.0	11	1.3	6.7	0.0	0.0	
July.....	73	86	99	61	39	78	70	5.3	9	2.8	12.7	0.0	0.0	
August.....	71	85	98	57	40	74	68	2.8	6	3.3	3.5	0.0	0.0	
Summer mean.....	71	84		58				12.1	26	7.4	22.9	0.0		
September.....	65	79	96	50	27	68	61	2.3	6	2.1	5.2	0.0	0.0	
October.....	52	70	89	40	14	56	45	2.4	4	1.4	1.1	0.0	0.0	
November.....	39	53	80	30	1	45	31	2.9	7	4.0	3.5	0.6	3.0	
Fall mean.....	52	67		40				7.6	17	7.5	9.8	0.6		
Annual mean.....	50	63		39				38.5	94	29.4	48.2	24.4	13.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 1, 2, 8, 31; Feb. 1, 8-15; Dec. 31.	Sept. 3.	1902	Feb. 3, 5, 19, 20; Mar. 6; Dec. 31.	June 12.
1900	Jan. 29, 31; Feb. 1-3, 18, 25-27; Mar. 17, 18.	July 15-17; Aug. 6-12.	1903	Jan. 1, 10, 12, 13; Feb. 17-19; Dec. 17, 28, 30.	July 9; Aug. 25.
1901	Feb. 2, 23; Mar. 6; Dec. 16, 19-22.	July 21, 22, 24, 27-29.			

OHIO.

Middle Section (Eastern part): JEFFERSON COUNTY. Station: NEW ALEXANDRIA.

MARY K. PENNELL, Observer.

[Established January, 1886. Latitude, 40° 18' N. Longitude, 80° 45' W. Elevation, 1,040 feet.]

This station is in eastern Jefferson County, in the extreme eastern part of the middle section, in the unglaciated part of the State. It is near the top of a hill, 1½ miles from the Ohio River, and nearly 400 feet above it. The country is very hilly. This station is typical of the hills near the Ohio River.

Maximum and minimum thermometers are in use. They are exposed in a standard shelter, 15 feet from the north side of the dwelling house, and 6 feet above the ground. The rain gage that was in use up to November, 1903, was a small 3-inch gage; a standard gage has since been installed. It is located 50 feet from the nearest building and 20 feet from the nearest fence. The height of the top of the gage above ground is 3 feet.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of the maximum and mean of the minimum temperatures, and absolute maximum and minimum temperature, number of days with 0.01 or more precipitation, snowfall, and wind direction are for five years only: the remaining tabulated data are for the period of observation, January 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	33	37	65	23	7	44	24	3.3	6	1.5	2.1	4.5	8.0	W.
January.....	29	37	61	22	3	39	20	3.7	6	2.0	5.3	7.2	6.0	W.
February.....	29	33	70	17	-23	40	20	3.8	6	4.2	2.7	7.9	12.0	W.
Winter mean.....	30	36		21				10.8	18	7.7	10.1	19.6		W.
March.....	39	51	78	31	-2	48	34	3.9	7	3.4	6.2	4.8	13.0	W.
April.....	51	61	88	40	19	56	17	3.4	7	2.4	2.9	4.6	14.0	W.
May.....	61	76	93	52	30	68	53	3.2	7	2.2	5.8	0.0	0.0	W.
Spring mean.....	50	63		41				10.5	21	8.0	14.0	9.4		W.
June.....	70	80	97	58	43	74	65	4.0	7	3.6	5.2	0.0	0.0	S.
July.....	73	86	100	64	48	79	68	4.1	8	4.6	4.4	0.0	0.0	S.
August.....	71	84	96	62	44	76	68	3.6	5	4.5	7.2	0.0	0.0	S.
Summer mean.....	71	83		61				11.7	20	12.7	16.8	0.0		S.
September.....	64	76	98	55	35	69	59	2.6	4	1.0	2.6	0.0	0.0	S.
October.....	53	67	86	46	26	60	47	2.2	3	1.3	3.4	T.	T.	S.
November.....	41	50	78	34	11	50	37	3.1	4	4.0	2.4	1.8	2.0	W.
Fall mean.....	53	64		45				7.9	11	6.3	8.4	1.8		S.
Annual mean.....	51	62	100	42	-23			40.9	70	34.7	50.2	30.8	14.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 2; Feb. 1, 9-14; Dec. 31.	None.	1901	Mar. 6; Dec. 16, 20, 21.	June 12, 30; July 1, 2, 24, 27-30.
1900	Jan. 29, 31; Feb. 1, 2, 25, 27; Mar. 17.	July 15; Aug. 9, 10.	1902	Feb. 3, 5.	June 12; July 6.
			1903	Jan. 12, 13; Feb. 18, 19.	July 4, 9; Aug. 24, 25.

OHIO.

Southern Section (Western part): MONTGOMERY COUNTY. Station: DAYTON.

EDITH E. L. BOYER, Observer.

[Established October, 1882. Latitude, 39° 44' N. Longitude, 84° 09' W. Elevation, 776 feet.]

This station was located on a glacial ridge east of the city and east of the Mad River from October, 1882, to September 12, 1886. Since that time it has been on the valley plain between the Mad and the Miami rivers. It is in the residence portion of the city, about 2 miles toward the northeast from the center.

Maximum and minimum thermometers are in use. They were exposed in a north window shelter until April 1, 1890, and since then in a standard Weather Bureau shelter, which is located in an open back yard. The shelter is 50 feet from the house, 20 feet from a low shed, and about 8 feet from a low fence and grape arbor. The height of the thermometers above ground is 5 feet. The rain gage is in an open place 10 feet east of the shelter. The top of the gage is 3 feet above the ground.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for a period of five years; the remaining tabulated data are for a period of twenty-one years, extending from October 1, 1882, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	33	40	67	23	-16	46	26	2.6	10	3.8	3.0	3.7	5.0	SW.
January.....	29	40	68	23	-22	40	19	3.1	8	2.0	6.0	6.4	10.0	SW.
February.....	33	38	72	20	-28	41	20	3.2	10	1.3	2.1	4.1	6.0	SW.
Winter mean.....	32	39		22				8.9	28	7.1	11.1	14.2		SW.
March.....	40	52	80	32	-3	48	31	3.3	12	2.4	8.0	1.4	4.0	W.
April.....	52	64	90	41	18	60	40	2.8	10	1.9	1.9	0.7	6.0	W.
May.....	63	76	97	52	28	71	58	3.7	11	3.4	3.5	T.	0.7	SW.
Spring mean.....	52	64		42				9.8	33	7.7	13.4	2.1		W.
June.....	73	84	100	61	41	78	66	4.3	12	4.0	3.2	0.0	0.0	W.
July.....	77	89	108	64	45	84	74	2.9	9	1.3	4.3	0.0	0.0	SW.
August.....	73	88	100	62	40	79	70	2.7	7	0.9	2.9	0.0	0.0	SW.
Summer mean.....	74	87		62				9.9	28	6.2	10.4	0.0		SW.
September.....	67	82	102	55	28	73	62	2.6	7	2.3	4.1	0.0	0.0	SW.
October.....	55	69	93	44	18	63	49	2.2	6	1.1	4.0	0.0	0.0	SW.
November.....	42	53	76	33	8	50	38	3.2	10	1.4	4.3	1.0	5.0	SW.
Fall mean.....	55	68		44				8.0	23	4.8	12.4	1.0		SW.
Annual mean.....	53	65	108	42	-28			36.6	112	25.8	47.3	17.3	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 25; Dec. 28, 29	June 12, 16, 22, 23, 30; July 12, 13, 16-19, 31; Aug. 9, 10, 18.	1900	Jan. 29, 31; Feb. 1, 17, 18, 25; Mar. 17.	July 3, 4, 7, 14, 15, 17; Aug. 5-12, 18-20; Sept. 5-11, 26.
1895	None	May 30, 31; June 1-4; July 16, 19-21; Aug. 9, 10, 16-18, 28; Sept. 10-12, 18-22.	1901	Jan. 31; Mar. 6; Dec. 15-21.	June 11, 25, 29, 30; July 1, 11, 16, 17, 20-30; Aug. 8, 9; Sept. 6, 7.
1896	Jan. 4; Feb. 20, 21	July 27, 29, 30.	1902	Jan. 28; Feb. 3-5, 8, 9, 14; Dec. 31.	June 12, 13, 15; July 9, 17; Aug. 3, 30.
1897	Jan. 24-31	June 15, 30; July 2-10; Aug. 2, 3; Sept. 6-16.	1903	Jan. 12, 13; Feb. 17-19; Dec. 26.	July 3, 4, 9-11, 25, 26, 28; Aug. 3, 19, 22-25; Sept. 7, 8, 14, 15.
1898	Jan. 1, 2; Feb. 3; Dec. 14, 15.	June 30; July 1-3, 6, 7, 23, 24; Aug. 22, 23, 30; Sept. 1-3.			
1899	Jan. 31; Feb. 1, 8-14; Dec. 16, 28, 30, 31.	June 22, 23, 28; July 2-4, 12, 13, 23, 24; Aug. 2-4, 12, 18, 19, 23, 24, 27; Sept. 5-7.			

OHIO.

Southern Section (Eastern part): MORGAN COUNTY. Station: McCONNELLSVILLE.

C. H. MORRIS, Observer.

[Established March, 1884. Latitude, 39° 50' N. Longitude, 81° 40' W. Elevation, 799 feet.]

McConnelsville is situated on the east bank of the Muskingum River. The valley is narrow at this point, and the land rises quite rapidly to high ridges.

The station is at the residence of the observer, nearly one-half mile from the river and about 100 feet above it.

The location of the station makes it typical of neither the plateau nor the strictly valley stations, but rather of the hillsides, or sides of the steeper valleys, that are so common in southeastern Ohio.

Maximum and minimum thermometers are in use. They were exposed in a large-sized shelter about 10 feet above the ground until May, 1903, when they were lowered to about 5 feet. The location is open and the exposure good. The rain gage has a free, open exposure. The height of the top of the gage above ground is 3 feet.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind direction are for five years; the remaining tabulated data are for twenty years, included within the period of observation, March 1, 1884, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	33	39	69	21	-11	45	24	2.9	11	4.0	2.8	4.6	8.0	W. S.
January.....	29	41	75	22	-11	41	19	3.4	11	5.5	6.9	7.4	4.0	S. W.
February.....	31	37	72	17	-29	43	20	3.4	11	0.9	3.7	6.8	9.0	W.
Winter mean.....	31	39		20				9.7	33	10.4	13.4	18.8		W.
March.....	41	52	80	31	-3	49	34	3.4	11	1.9	6.5	5.0	9.0	S.
April.....	51	63	93	38	18	58	47	3.1	8	1.5	3.3	3.2	8.0	W.
May.....	62	77	95	50	26	69	57	3.4	10	2.6	4.4	0.0	0.0	W.
Spring mean.....	51	64		40				9.9	29	6.0	14.2	8.2		W.
June.....	70	81	96	57	39	75	64	4.6	13	1.7	4.1	0.0	0.0	S.
July.....	74	87	102	63	42	79	69	5.0	10	1.2	2.8	0.0	0.0	S.
August.....	72	87	100	60	43	77	69	3.3	6	3.8	5.4	0.0	0.0	S.
Summer mean.....	72	85		60				12.9	29	6.7	12.3	0.0		S.
September.....	66	81	100	52	30	71	62	2.8	7	2.2	2.4	0.0	0.0	W. W.
October.....	54	72	93	42	15	61	48	2.2	5	1.7	3.5	T.	T.	W.
November.....	42	53	79	32	4	50	38	3.2	10	2.2	2.9	1.6	2.0	W.
Fall mean.....	54	69		42				8.2	22	6.1	8.8	1.6		W.
Annual mean.....	52	64	102	40	-29			40.7	113	29.2	48.7	28.6	9.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 2; Feb. 1, 9-15; Dec. 31.	July 24; Aug. 19, 20; Sept. 1, 7.	1901	Dec. 16, 17, 19-21.....	June 30; July 1, 2, 22, 24, 27-29.
1900	Jan. 29, 31; Feb. 1, 25-27; Mar. 17.	July 15, 16; Aug. 6-12; Sept. 6, 8-11, 26.	1902	Feb. 3, 5.....	July 7.
			1903	Jan. 12, 13; Feb. 17-19; Dec. 17, 28, 30.	Aug. 24, 25.

OHIO.

Southern Section (Eastern part): WASHINGTON COUNTY. Station: MARIETTA.

THOS. D. BISCOE, Observer.

[Established before 1817. Latitude, 39° 35' N. Longitude, 81° 28' W. Elevation, 650 feet.]

Marietta is in southern Washington County, at the confluence of the Ohio and Muskingum rivers. The station is on the east side of the Muskingum, about 10 rods from it, and about 1 mile from the Ohio.

The observations were begun by the present observer in October, 1882. Maximum and minimum thermometers are in use. They have been constantly exposed in a window shelter of standard make, louvered and double roofed. It is at a second-story window on the north side of a seldom-used shed. Its exposure is excellent. The height of the thermometers above the ground is 10 feet. The rain gage is well exposed in a large yard, fully 20 feet from the house and small trees. The height of the top of the gage above ground is 3 feet.

Since 1882 the monthly mean temperature has been obtained from the maximum and minimum thermometers.

Tabulated data are included within the period of observation, November 1, 1817, to December 31, 1903, and are as follows: Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, snow and wind direction, are for a period of five years; absolute maximum and minimum temperature, for twelve years; mean temperature and highest and lowest monthly means, for sixty-one years; mean precipitation, and total amounts for the driest and wettest years, for fifty-nine years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	34	41	70	26	- 4	46	20	3.4	12	2.6	8.7	3.4	3.0	S.
January.....	32	41	69	26	- 8	43	19	3.0	11	5.4	1.7	5.9	4.0	S.
February.....	34	38	74	22	- 22	44	21	3.3	11	0.9	3.4	5.7	6.5	S.
Winter mean.....	33	40		25				9.7	34	8.9	13.8	15.0		S.
March.....	42	54	85	35	2	52	28	3.2	13	3.1	1.0	4.9	10.0	W.
April.....	53	64	92	43	21	61	43	3.3	9	1.2	5.0	1.8	5.0	S.
May.....	63	77	93	54	35	70	55	4.0	10	1.6	12.4	0.0	0.0	S.
Spring mean.....	53	65		44				10.5	32	5.9	18.4	6.7		S.
June.....	70	80	96	61	43	74	65	4.5	14	2.4	3.1	0.0	0.0	S.
July.....	74	86	101	66	48	80	70	4.4	9	1.5	5.3	0.0	0.0	S.
August.....	72	84	98	64	48	78	67	3.9	7	2.6	7.4	0.0	0.0	S.
Summer mean.....	72	83		64				12.8	30	6.5	15.8	0.0		S.
September.....	65	78	94	57	37	71	57	3.0	7	2.1	1.4	0.0	0.0	S.
October.....	53	69	87	47	19	62	46	2.9	5	1.3	7.7	0.0	0.0	S.
November.....	43	54	78	36	15	52	36	3.2	9	2.0	4.8	0.2	0.5	S.
Fall mean.....	54	67		47				9.1	21	5.4	13.9	0.2		S.
Annual mean.....	53	64	101	43	- 22			42.1	117	26.7	61.9	21.9	10.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 2; Feb. 1, 9-14....	None.	1902	None.....	None.
1900	Feb. 25.....	Do.	1903	.....do.....	Do.
1901	Dec. 16.....	July 1, 22, 27.			

OHIO.

Southern Section (Western part): CLINTON COUNTY. Station: CLARKSVILLE.

E. T. M. WILLIAMS, Observer.

[Established in November, 1886. Latitude, 39° 25' N. Longitude, 84° 12' W. Elevation, 1,010 feet.]

Clarksville is in the western part of Clinton County. The station is in the country, 2½ miles west of the town. It is located on a high plain, near the northern projection of the loess-covered till plain that extends from the Ohio northward between meridians 83° 30' and 84° 30'.

Maximum and minimum thermometers are in use. They were located on a north porch until 1888, when they were placed in a freely-exposed standard shelter. The height of thermometers above ground is 5 feet. A standard rain gage is in use and is well exposed in a large, open yard. The height of the top of the gage above ground is 3 feet.

The exposure of the instruments is unusually good at this station, and the topographic surroundings are so open that it seems that the record of the thermometers must be the temperature of the free air over a large area.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, and wind directions, are for a period of five years; the remaining tabulated data are for seventeen years, extending from November 1, 1886, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	33	39	67	23	-13	45	25	2.5	12	3.8	3.3	3.4	9.0	W.
January.....	30	39	68	23	-16	40	19	3.4	11	1.4	7.0	4.2	14.0	W.
February.....	31	34	81	18	-22	40	20	3.3	11	1.1	2.2	3.3	8.0	W.
Winter mean.....	31	37	.....	21	.....	.....	.....	9.2	34	6.3	12.5	10.9	.....	W.
March.....	41	52	81	33	1	49	36	3.8	13	2.0	7.7	1.4	7.0	W.
April.....	52	62	87	42	21	59	48	3.2	11	1.8	1.6	0.7	2.5	W.
May.....	62	76	92	54	31	69	58	3.7	12	3.8	3.0	T.	T.	W.
Spring mean.....	52	63	.....	43	.....	.....	.....	10.7	36	7.6	12.3	2.1	.....	W.
June.....	71	81	97	61	40	74	66	4.3	14	2.8	2.3	0.0	0.0	W.
July.....	75	87	104	65	46	80	69	3.1	9	3.3	3.7	0.0	0.0	W.
August.....	73	86	98	63	44	78	70	3.6	9	2.8	9.1	0.0	0.0	W.
Summer mean.....	73	85	.....	63	.....	.....	.....	11.0	32	8.9	15.1	0.0	.....	W.
September.....	66	81	99	56	45	72	58	2.2	8	1.2	2.6	0.0	0.0	W.
October.....	54	71	89	47	20	63	48	2.0	7	0.7	3.2	T.	T.	SW.
November.....	43	54	79	35	0	52	37	3.6	12	0.9	3.2	2.4	7.0	W.
Fall mean.....	54	69	.....	46	.....	.....	.....	7.8	27	2.8	9.0	2.4	.....	W.
Annual mean.....	53	64	104	43	-22	.....	.....	38.7	129	25.6	48.9	15.4	14.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Feb. 1, 8-14; Dec. 31.	Aug. 2; Sept. 5-7.	1902	Feb. 3, 5.....	None.
1900	Jan. 29, 31; Feb. 1, 17, 25	July 15; Aug. 10.	1903	Jan. 12; Feb. 17-19....	July 28; Aug. 24, 25; Sept. 8.
1901	Jan. 31; Dec. 15, 16, 20, 21.	June 30; July 1, 11, 1f, 20-22, 24-29; Aug. 8-9.			

OHIO.

Southern Section (Southern part): JACKSON COUNTY. Station: COALTON.

J. A. SELL, Observer.

[Established 1893. Latitude, 39° 15' N. Longitude, 82° 35' W. Elevation, 691 feet.]

Coalton is in northern Jackson County, near the head of a small branch of the Scioto River. The land is very hilly. The station is 1 mile north of Coalton in a narrow cup-shaped valley. The valley is about one-fourth of a mile wide near the residence of the observer, but narrows down to a few rods at the lower end.

Maximum and minimum thermometers are in use. They were exposed in a home made shelter until December, 1898, when a standard Weather Bureau shelter was installed. The height of the thermometers above the ground is 5 feet.

A 3-inch rain gage was in use until April, 1901, when an 8-inch standard gage was installed. It is well exposed, and the height of the top of the gage above ground is 3 feet.

The monthly mean temperature was obtained from the extremes of the maximum and minimum thermometers.

Mean of the maximum and mean of the minimum temperatures, number of days with 0.01 or more precipitation, average depth of snow, wind direction, and frost data are for a period of five years; the remaining tabulated data are from January 1, 1894, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	Average depth.	Greatest depth in 24 hours.	
December.....	33	41	79	22	-27	37	25	2.8	9	2.8	3.0	3.1	3.0	S.
January.....	32	41	70	21	-19	36	26	2.9	9	4.0	7.1	8.0	2.0	S.
February.....	30	37	74	17	-38	37	21	3.3	8	0.8	2.6	6.4	2.0	SW.
Winter mean.....	32	40		20				9.0	26	7.6	12.7	17.5		S.
March.....	43	56	85	33	-2	51	35	3.6	11	1.7	4.9	4.3	T.	SW.
April.....	52	65	93	38	13	58	48	2.6	8	1.5	1.8	1.4	0.0	NE.
May.....	63	79	97	49	25	67	59	3.7	9	1.5	5.0	0.0	0.0	S.
Spring mean.....	53	67		40				9.9	28	4.7	11.7	5.7		S.
June.....	71	83	104	58	35	74	66	4.4	11	3.1	2.8	0.0	0.0	S.
July.....	75	90	103	61	39	78	73	3.4	7	1.8	4.6	0.0	0.0	S.
August.....	74	89	101	60	39	77	71	2.8	6	1.8	5.8	0.0	0.0	S.
Summer mean.....	73	87		60				10.6	24	6.7	13.2	0.0		S.
September.....	68	83	102	52	27	72	64	2.1	5	1.7	2.4	0.0	0.0	N.
October.....	56	74	92	41	8	62	46	1.8	4	1.1	2.8	0.0	0.0	S.
November.....	43	56	80	32	6	50	38	2.8	8	1.5	3.1	1.5	3.4	SW.
Fall mean.....	56	71		42				6.7	17	4.3	8.3	1.5		SW.
Annual mean.....	52	66	104	40	-38			36.2	95	23.3	45.9	24.7	3.4	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Jan. 2, 3, 8; Feb. 1, 8-15; Dec. 31.	June 5, 23; July 27; Aug. 2-4, 19, 20, 22, 24, 25; Sept. 1-3, 5-8.	1902	Feb. 5, 14.	June 12; July 7-9, 17.
1900	Jan. 29, 31; Feb. 1, 25, 27.	July 5-7, 15-17; Aug. 5-12, 19; Sept. 6-8-11, 26.	1903	Jan. 10; Feb. 17-19; Dec. 1, 3, 17, 30.	July 3, 9, 10, 25, 26, 28; Aug. 2, 23-25; Sept. 10, 14.
1901	Jan. 31; Dec. 15-21	June 24, 29, 30; July 11, 16, 17, 21-24, 26-29.			

OHIO.

Southern District: HAMILTON COUNTY. Station: CINCINNATI.

S. S. BASSLER, Local Forecaster.

[Established by Signal Service November 1, 1870. Latitude, 39° 6' N. Longitude, 84° 30' W. Elevation, 544 feet.]

The main business portion of Cincinnati is situated on a series of terraces in a basin cut out by the Ohio River. These bluffs or hills extend nearly parallel with the river on its north and south sides, in a general east and west direction, except Price Hill, just west of the city, which runs north and south. The opening between these hills is greatest between the south spur of Price Hill and the distant Kentucky hills, an opening cut out by the Ohio River, and making an uninterrupted passage for southwesterly winds.

The thermometers are exposed in a regulation Weather Bureau shelter on the roof of the Government building, 52 feet above the ground. The wind vane is 161 feet above the ground and the anemometer cups 1 foot below the vane. The tops of the snow and rain gages, also located on the roof of the Government building, are 145 feet above the ground.

Tabulated data are from the following periods of observation: All temperature data, thirty-two years; number of days with 0.01 precipitation, thirty-two years; average depth of snow, fourteen years; humidity, fifteen years; sunshine, fourteen years. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	36	43	72	29	-8	48	25	3.0	12	3.4	4.3	4.1	7.0	80	1.76	72	1.90	111	38	SW.
January.....	32	40	71	24	-12	49	21	3.3	13	0.9	5.1	6.0	5.0	80	1.55	74	1.75	120	40	SW.
February.....	35	43	73	27	-17	46	23	3.4	12	1.4	4.5	4.6	5.5	79	1.53	69	1.70	124	41	NW.
Winter mean.....	34	42	72	27	-12	47	23	9.7	37	5.7	13.9	14.7	5.8	80	1.61	72	1.78	118	40	SW.
March.....	43	51	84	34	1	51	35	3.6	14	2.0	4.2	3.2	4.0	76	1.94	66	2.25	158	42	NW.
April.....	54	63	87	45	18	62	48	2.9	12	1.9	5.8	0.3	4.0	71	2.70	55	2.95	215	54	SE.
May.....	65	77	94	57	33	71	60	3.4	12	1.6	5.7	0.1	1.5	72	4.00	57	3.13	270	61	SE.
Spring mean.....	54	64	87	45	18	62	48	9.9	38	5.5	15.7	3.6	1.8	73	2.88	59	2.78	214	56	SE.
June.....	74	82	98	65	39	80	68	4.0	12	2.3	9.9	0.0	0.0	74	5.72	58	5.60	316	71	SE.
July.....	78	87	105	69	53	82	71	3.5	10	1.4	2.5	0.0	0.0	74	6.30	56	5.75	340	75	SW.
August.....	76	84	101	66	51	80	72	3.4	9	0.9	4.0	0.0	0.0	77	5.95	56	5.76	305	72	NE.
Summer mean.....	76	84	101	67	51	80	72	10.9	31	4.6	16.4	0.0	0.0	75	5.99	57	5.70	320	73	SW.
September.....	69	78	90	60	35	76	64	2.4	8	0.9	1.4	0.0	0.0	78	4.79	58	4.94	267	72	SE.
October.....	57	66	88	48	27	65	51	2.2	9	0.6	3.0	0.0	T.	79	3.22	59	3.39	229	66	SE.
November.....	44	52	78	37	5	49	37	3.3	11	0.7	4.4	0.7	1.5	78	2.22	68	2.41	131	43	SE.
Fall mean.....	57	65	84	48	27	65	51	7.9	28	2.2	8.8	0.7	1.2	78	3.41	62	3.58	209	60	SE.
Annual mean.....	55	64	105	47	-17	62	51	38.4	134	18.0	54.8	19.0	7.0	76	3.47	62	3.46	216	56	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 25.....	Aug. 9, 10.	1899	Feb. 8-14.....	Aug. 2-4; Sept. 5-7.
1895	Jan. 12, 13; Feb. 8, 9..	June 3; July 19; Aug. 17, 18; Sept. 18, 20.	1900	Feb. 25.....	Aug. 10, 19; Sept. 10.
1896	Jan. 4; Feb. 20.....	July 29, 30; Aug. 6.	1901	None.....	June 29, 30; July 1, 11, 15-17, 21-24, 26-29; Aug. 8, 9.
1897	Jan. 24-26, 28.....	July 3, 4, 8, 9; Aug. 3; Sept. 10, 12, 15, 16.	1902	Feb. 3.....	July 17.
1898	None.....	July 2, 3.	1903	Jan. 12; Feb. 17, 19..	July 3, 10.

OHIO.

Southern section: SCIOTO COUNTY. Station: PORTSMOUTH.

HARRY A. SCHIRRMANN, Observer.

[Established January 1, 1825. Latitude, 38° 44' N. Longitude, 83° 00' N. Elevation, 520 feet.]

Portsmouth is situated outside the glaciated area on the Ohio River at the mouth of the Scioto. The greater part of the city stands east of the Scioto, on the second bench of that river but on the first bench of the Ohio. It is on a large, nearly level, plain. The surrounding country is very hilly and across the Ohio the bluffs rise several hundred feet. The soil is valley drift and alluvium.

The instruments have been in the possession of the present observer only since October 16, 1903. The thermometers are exposed in a standard shelter in the back yard on the north side of the house, and 5 feet from it. They are 5 feet above the ground. The air circulation is good.

The rain gage is now 10 feet from a low building and fence, and 2 feet above the ground.

Since 1883 the monthly mean temperature and other temperature data have been obtained from the maximum and minimum thermometers. Before that time they were obtained from the tridaily readings of the exposed thermometer.

Mean of the maximum and mean of the minimum temperature, number of days with 0.01 or more precipitation, average depth of snow, and wind direction, are for a period of five years; absolute maximum and minimum temperatures, for twelve years; greatest depth of snow, twenty-eight years; the remaining temperature and precipitation data are for about seventy-three years, included within the period of observation January 1, 1830, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	36	43	72	25	— 2	49	23	3.4	10	0.1	8.1	2.2	10.0	SW.
January.....	35	44	73	25	— 11	45	22	3.4	10	1.1	8.2	4.7	12.0	SW.
February.....	37	40	78	22	— 18	47	26	3.2	10	1.4	3.6	5.7	6.0	SW.
Winter mean.....	36	42		24				10.0	30	2.6	19.9	12.6		SW.
March.....	45	57	91	36	5	56	33	3.6	11	6.0	8.1	4.1	11.0	SW.
April.....	57	67	97	43	20	66	47	3.3	11	1.1	3.7	1.0	6.0	SW.
May.....	65	80	99	55	32	74	57	3.5	9	2.5	3.8	T.	T.	SW.
Spring mean.....	56	68		45				10.4	31	9.6	15.6	5.1		SW.
June.....	73	84	102	62	41	79	68	4.1	13	3.8	3.6	0.0	0.0	SW.
July.....	77	90	106	66	48	83	71	4.0	9	0.3	4.0	0.0	0.0	SW.
August.....	74	87	100	65	48	81	67	3.4	9	0.9	8.0	0.0	0.0	SW.
Summer mean.....	75	87		64				11.5	31	5.0	15.6	0.0		SW.
September.....	68	82	101	57	35	78	62	2.8	7	2.9	0.8	0.0	0.0	SW.
October.....	56	72	91	47	18	64	47	2.7	5	0.1	2.6	T.	T.	SW.
November.....	45	56	84	35	10	52	36	3.0	9	4.1	2.8	1.0	5.0	SW.
Fall mean.....	56	70		46				8.5	21	7.1	6.2	1.0		SW.
Annual mean.....	56	67	106	45	— 18			40.4	113	24.3	57.3	18.7	12.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1899	Feb. 1, 9-14; Dec. 31...	June 5-7, 22, 23; July 2-4, 12, 13, 24, 25, 27; Aug. 2-4; Sept. 3, 5-7.	1901	Dec. 16, 21.....	June 11, 24, 25, 28-30; July 1, 11, 15, 16, 21, 22, 24, 26-29.
1900	Feb. 25.....	June 10; July 3-6, 14-17; Aug. 7-12; Sept. 6, 8-11.	1902	None.....	June 12; July 5, 7, 9, 17; Aug. 3.
			1903	Feb. 19.....	July 3, 4, 9, 10, 25, 26; Aug. 24, 25.



WEST VIRGINIA.

By ELISHA C. VOSE,
Section Director.

WEST VIRGINIA.

The topography of the State is varied, and this has a marked effect upon the climate. It has broad valleys on its eastern and western sides, which become very narrow in the mountain districts over the eastern portion. The average altitude of the Alleghany Mountains, which extend over the State in a southwesterly direction, is from 2,500 to 3,000 feet. The highest point is Spruce Knob, in Pendleton County, which is 4,860 feet above sea level, and the lowest points are 260 feet at Harpers Ferry and 500 feet at the mouth of the Big Sandy River. The State slopes in three general directions: From the top of Spruce Knob the tributaries of the Potomac descend rapidly to the eastward. The Cheat flows to the northward and empties into the Monongahela not far from the Pennsylvania line, and the Greenbrier, the Elk, and the Gauley rivers flow toward the southwest and join the Great Kanawha River, which is the largest tributary of the Ohio.

The climate varies greatly in different portions of the State. The actual range of latitude is three and one-half degrees, from 37° 10' to 40° 40', which gives a range of temperature of 6°; but the range of altitude being so great—4,600 feet—gives a range of temperature equal to a range of latitude of from 10° to 15°. This means that the vegetable and forest products of the State as well as the climate are such as may be found from the southern part of Virginia to the Canadian border.

The average elevation of the western half of the State is from 1,000 to 1,200 feet; of the western plateau from 1,500 to 1,700 feet; of the eastern plateau from 2,000 to 2,200 feet, and of the eastern panhandle from 500 to 700 feet; the average elevation of the State being about 1,500 feet.

The counties bordering along the Ohio River north of the thirty-ninth parallel have about the same character of climate as those in the eastern panhandle, although such low temperatures are not reached in the panhandle section, the mountains no doubt preventing this. The mean annual temperature over these sections is about 53°. These two sections, together with the extreme southeastern portion, get the least mean annual precipitation, averaging from 35 to 40 inches. Over the southwestern portion of the State the mean annual temperature will average about 56° and the mean annual precipitation about 50 inches. The western plateau counties, which extend in a southwesterly and northeasterly direction about 100 miles east of the Ohio River, as well as the eastern plateau counties, have a climate that differs somewhat from the lowlands. Over these plateau regions the mean annual temperature is about 52° and the mean annual rainfall is from 45 to 50 inches. The seasons are just a little shorter and frosts and snows a little more frequent. The mountain tier of counties have a climate altogether different from those already described. Their spring and autumn seasons are much shorter, snows are deeper and more frequent and the wind currents are drier and stronger. The mean annual temperature over this section is from 48° to 50° and the mean annual precipitation over 50 inches. The dates of first killing frost in autumn and of last killing frost in spring occur from twelve to eighteen days earlier and later than in the lowlands.

The mean annual range of temperature over the State is from 6° to 8°, the temperature being highest in the southwest portion and lowest over the mountains. The mean annual range of precipitation is from 15 to 20 inches, the precipitation being greatest over the mountains and least over the eastern panhandle and extreme southeastern counties. The winter mean temperature of the western border and the eastern panhandle counties is from 31° to 34°; the spring mean, 51° to 53°; the summer mean is 74°, and the fall mean 55°. The winter and spring precipitation averages about 10 inches; the summer from 10 to 13 inches, and the fall from 7 to 8 inches. The extreme range of temperature is 142°, the highest ever recorded being 107° and the lowest 35° below zero. It is seldom, however, that the temperature goes over 100° or lower than 15° below zero. The average amount of sunshine for the State is about 50 per cent and the prevailing direction of the wind from south to west.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Barbour (<i>see</i> Elkins).....	.....	Eastern-Central.....	.....	Hardy (<i>see</i> Burlington).....	.....	Eastern slope.....	.....
Berkeley.....	Martinsburg.....	Eastern-Panhandle.....	746	Harrison.....	Lost Creek.....	Northern-Central.....	748
Boone (<i>see</i> Powellton).....	.....	Southwestern.....	.....	Jackson (<i>see</i> Parkersburg; Point Pleasant).....	.....	Central Ohio Valley.....	.....
Braxton (<i>see</i> Glenville).....	.....	Western-Central.....	.....	Jefferson (<i>see</i> Martinsburg).....	.....	Eastern-Panhandle.....	.....
Brooke.....	Wellsburg.....	Northern-Panhandle.....	742	Kanawha (<i>see</i> Powellton).....	.....	Southern-Central.....	.....
Cabell (<i>see</i> Point Pleasant).....	.....	Central Ohio Valley.....	.....	Lewis (<i>see</i> Lost Creek).....	.....	Northern-Central.....	.....
Calhoun (<i>see</i> Glenville).....	.....	Western-Central.....	.....	Lincoln (<i>see</i> Point Pleasant).....	.....	Southwestern.....	.....
Clay (<i>see</i> Powellton).....	.....	Southern-Central.....	.....	Logan (<i>see</i> Elkhorn).....	.....	do.....	.....
Doddridge (<i>see</i> Lost Creek).....	.....	Northern-Central.....	.....	McDowell.....	Elkhorn.....	Southern.....	755
Fayette.....	Powellton.....	Southern-Central.....	752	Marion (<i>see</i> Morgantown).....	.....	Northern slope.....	.....
Gilmer.....	Glenville.....	Western-Central.....	750	Marshall (<i>see</i> Wellsburg).....	.....	Northern-Panhandle.....	.....
Grant (<i>see</i> Burlington).....	.....	Eastern slope.....	.....	Mason.....	Point Pleasant.....	Central Ohio Valley.....	749
Greenbrier (<i>see</i> Marlinton).....	.....	Eastern-Central.....	.....	Mercer (<i>see</i> Elkhorn).....	.....	Southern.....	.....
Hampshire (<i>see</i> Burlington).....	.....	Eastern slope.....	.....	Mineral.....	Burlington.....	Eastern slope.....	745
Hancock (<i>see</i> Wellsburg).....	Northern-Panhandle.....	Mingo (<i>see</i> Elkhorn).....	Southwestern.....

NORTH CENTRAL DISTRICTS

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LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Monongalia	Morgantown	Northern slope...	743	Randolph	Elkins	Eastern-Central ..	751
Monroe (see Hinton)		Southeastern		Ritchie (see Lost Creek)		Northern-Central ..	
Morgan (see Martinsburg)		E a s t e r n-Pan-		Roane (see Glenville)		Western-Central ..	
		handle.		Summers	Hinton	Southeastern	754
Nicholas (see Powellton)		Southern-Central ..		Taylor (see Morgantown)		Northern slope	
Ohio (see Wellsburg)		Northern-Pan-		Tucker (see Elkins)		Eastern-Central	
		handle.		Tyler (see Parkersburg)		Central Ohio Val-	
Pendleton (see Burlington)		Eastern slope				ley.	
Pleasants (see Parkersburg)		Central Ohio Val-		Upshur (see Elkins)		Eastern-Central	
		ley.		Wayne (see Point Pleasant)		Southwestern	
Pocahontas	Marlinton	E a s t e r n-Cen-	753	Webster (see Marlinton)		Eastern-Central	
		tral-Mountain.		Wetzell (see Parkersburg)		Central Ohio Val-	
Preston	Terra Alta	Northern-Cen-	744			ley.	
		tral-Mountain.		Wirt (see Parkersburg)		do	
Putnam (see Point Pleas-		Central Ohio Val-		Wood	Parkersburg	do	747
ant).		ley.		Wyoming (see Elkhorn)		Southern	
Raleigh (see Powellton)		Southern-Central ..					

STATE SUMMARY—WEST VIRGINIA.

		Temperature.										Average num- ber days with—	
Station.	Num- ber.	Mean an- nual.	Mean maxi- mum.	Mean mini- mum.	Abso- lute maxi- mum.	Date.	Abso- lute mini- mum.	Date.					
									Maxi- mum above 90°.	Mini- mum below 32°.			
		° F.	° F.	° F.	° F.		° F.						
Wellsburg	1	51	59	41	94	July, 1901	-6	February, 1903	5	132			
Morgantown	2	53	64	42	105	August, 1903	-25	February, 1899	30	195			
Terra Alta	3	48	59	38	100	....., 1900	-24	do	0	153		
Burlington	4	52	64	40	102	July, 1898	-18	January, 1899	26	130			
Martinsburg	5	53	64	42	104	July, 1900	-13	February, 1899	26	119			
Parkersburg	6	54	64	44	102	July, 1901	-27	do	22	93			
Lost Creek	7	53	66	40	99	July, 1898	-35	do	30	114			
Point Pleasant	8	56	67	44	102	....., 1897	-26	do	48	104		
Glenville	9	52	63	42	100	July, 1901	-29	do	19	114			
Elkins	10	50	61	38	94	do	-21	do	4	136			
Powellton	11	53	65	42	99	August	-20	do	25	110			
Marlinton	12	50	62	38	100	June, 1894	-23	do	5	180			
Hinton	13	55	66	43	98	July, 1897	-12	do	14	127			
Elkhorn	14	54	65	43	95	July, 1902	-12	do	10	89			

Station.	Num- ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						Inches.	Inches.	Inches.	Inches.	Inches.
Wellsburg	1	Oct. 15	May 3	Oct. 1	May 10	40.2	11.2	13.6	6.8	8.7
Morgantown	2	Oct. 13	Apr. 30	do	do	41.0	11.2	13.5	7.8	8.5
Terra Alta	3	Oct. 5	May 6	Sept. 14	do	55.4	11.2	20.1	10.1	14.0
Burlington	4	Sept. 29	Apr. 29	Sept. 15	May 29	35.4	10.0	10.1	7.3	8.0
Martinsburg	5	Oct. 20	Apr. 16	Oct. 1	May 3	35.2	10.5	10.5	6.8	7.4
Parkersburg	6	Oct. 17	Apr. 11	Sept. 24	May 22	41.3	10.1	13.2	8.2	9.8
Lost Creek	7	Oct. 2	Apr. 29	Sept. 14	May 8	43.5	12.1	13.4	7.7	10.3
Point Pleasant	8	Oct. 18	Apr. 17			39.5	10.2	11.7	7.3	10.3
Glenville	9	do	Apr. 25	Oct. 1	May 29	46.9	11.9	14.0	9.2	11.8
Elkins	10	Oct. 11	Apr. 28	Sept. 28	May 10	45.6	12.3	13.4	8.6	11.3
Powellton	11	Oct. 12	Apr. 23	Oct. 1	May 13	43.3	13.1	12.6	6.8	10.8
Marlinton	12	Oct. 5	Apr. 30	Sept. 21	May 28	45.7	12.1	15.2	8.7	9.7
Hinton	13	Oct. 19	Apr. 20	Oct. 5	May 10	38.4	11.2	11.4	6.8	9.0
Elkhorn	14	Oct. 17	Apr. 24	Oct. 1	May 15	44.4	12.9	14.3	7.8	9.4

WEST VIRGINIA.

Northern Panhandle: BROOKE COUNTY. Station: WELLSBURG.

C. P. WAUGH, Observer.

[Established by the U. S. Weather Bureau October 1, 1899. Latitude, 40° 20' N. Longitude, 80° 45' W. Elevation, 1,225 feet.]

The station is located about 5 miles from the town of Wellsburg, at Highland Springs Farm, in the eastern part of the county. The contour of this part of the county is somewhat hilly and undulating. The maximum and minimum thermometers have a good exposure facing the north, and the rain gage is exposed in the open, about 40 feet from the house, near some small bushes to break the wind.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	34	66	22	- 5	32	24	3.2	12	1.4	4.6	5.8	6.0	W.
January.....	29	36	61	22	- 2	31	27	2.4	12	2.1	1.8	6.5	3.0	W.
February.....	25	33	73	17	- 6	30	21	3.1	11	3.2	0.8	7.1	9.0	W.
Winter mean.....	27	35	.....	20	.....	.....	.....	8.7	35	6.7	7.2	19.4	.....	W.
March.....	40	49	75	31	- 1	47	32	3.6	12	3.4	2.8	6.1	10.0	W.
April.....	48	58	82	38	20	50	46	4.4	12	2.1	8.2	5.5	12.0	W.
May.....	62	73	88	51	28	64	60	3.2	10	1.6	6.8	0.0	0.0	W.
Spring mean.....	50	60	.....	40	.....	.....	.....	11.2	34	7.1	17.8	11.6	.....	W.
June.....	67	77	90	57	41	70	63	5.6	15	4.6	5.0	0.0	0.0	W.
July.....	73	82	94	64	49	76	71	4.8	12	6.1	3.5	0.0	0.0	W.
August.....	71	81	91	61	45	74	67	3.2	9	4.1	4.2	0.0	0.0	W.
Summer mean.....	70	80	.....	61	.....	.....	.....	13.6	36	14.8	12.7	0.0	.....	W.
September.....	65	75	90	54	36	69	63	2.2	9	1.2	3.7	0.0	0.0	W.
October.....	55	65	86	45	27	58	53	2.0	6	1.2	0.3	T.	T.	SW.
November.....	42	49	70	34	11	48	36	2.6	10	3.8	1.9	2.0	2.0	W.
Fall mean.....	54	63	.....	44	.....	.....	.....	6.8	25	6.2	5.9	2.0	.....	W.
Annual mean.....	51	59	94	41	- 6	.....	.....	40.2	130	34.8	43.6	33.0	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1900, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1900	Jan. 29, 31; Feb. 1, 2, 25, Mar. 17.	July 16, 17; Aug. 6, 9-12; Sept. 11.	1902	Feb. 3-5.....	None.
1901	Feb. 23; Mar. 6.....	June 30; July 1, 2, 21, 22, 24, 27-29.	1903	Jan. 13; Feb. 17-19....	July 4.

WEST VIRGINIA.

Northern Slope: MONONGALIA COUNTY. Station: MORGANTOWN.

HORACE ATWOOD, Observer.

[Established by the U. S. Weather Bureau January 1, 1893. Latitude, 39° 39' N. Longitude, 79° 58' W. Elevation, 1,250 feet.]

The station is located about 1 mile from the city of Morgantown, on the farm of the experiment station. The contour of the county is only slightly broken. The only mountains are situated in the eastern portion of the county, and the rest of the county is only slightly undulating or hilly.

The maximum and minimum thermometers are standard instruments and are exposed in a regular cotton region shelter, which is located about 30 feet from the experiment station farmhouse, to the northeast. The rain gage is located on the ground and has a free exposure.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	34	44	69	25	4	38	27	2.5	8	1.5	0.7	6.8	12.0	W.	
January.....	31	41	69	21	— 1	38	23	3.0	10	1.6	5.8	7.0	8.0	W.	
February.....	30	40	80	20	— 25	36	22	3.0	9	3.0	1.7	5.6	7.0	W.	
Winter mean.....	32	42		22				8.5	27	6.1	8.2	19.4		W.	
March.....	43	54	90	32	— 4	51	33	3.9	11	3.6	6.2	6.2	18.0	W.	
April.....	51	62	93	41	8	57	46	3.6	10	1.5	4.9	2.8	16.0	W.	
May.....	63	76	94	51	28	68	56	3.7	9	2.1	4.8	0.0	0.0	W.	
Spring mean.....	52	64		41				11.2	30	7.2	15.9	9.0		W.	
June.....	69	79	99	59	37	72	65	4.8	11	5.4	5.2	0.0	0.0	W.	
July.....	75	86	101	63	44	78	72	5.1	12	6.9	4.0	0.0	0.0	W.	
August.....	73	86	105	60	44	77	69	3.6	9	4.3	7.9	0.0	0.0	W.	
Summer mean.....	72	84		61				13.5	32	16.6	17.1	0.0		W.	
September.....	68	80	102	57	33	72	65	2.1	7	0.5	2.8	0.0	0.0	W.	
October.....	55	68	94	42	15	61	46	2.4	7	3.9	5.6	0.0	0.0	W.	
November.....	44	54	80	33	9	52	36	3.3	9	5.1	2.7	1.0	3.0	W.	
Fall mean.....	56	67		44				7.8	23	9.5	11.1	1.0		W.	
Annual mean.....	53	64	105	42	— 25			41.0	112	39.4	52.3	29.4	18.0	W.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 28-30.....	July 20, 29 Aug. 8; Sept. 14.	1899	Jan. 2, 31; Feb. 1, 8-15.	June 5, 6, 23; July 23; Aug. 21, 25; Sept. 3, 5.
1895	Jan. 4, 5, 13; Feb. 3, 5-10, 13.	Aug. 11 (3 months missing).	1900	Feb. 25, 27.....	July 15-17; Aug. 6-12; Sept. 6, 8, 10, 11.
1896	Jan. 5, 6; Feb. 17, 19-22; Mar. 13, 14.	None (1 month missing).	1901	Mar. 6; Dec. 16, 20.....	July 1, 27, 28.
1897	Jan. 24-31; Feb. 1.....	July 4, 5; Sept. 8-16.	1902	None.	None.
1898	Feb. 3-5; Dec. 14, 15.....	July 2, 3, 8, 24; Sept. 1-3.	1903	Feb. 18, 19.....	Do.

WEST VIRGINIA.

Northeastern Mountain: PRESTON COUNTY. Station: TERRA ALTA.

M. HARTMAN, Observer.

[Established by the U. S. Weather Bureau January 1, 1898. Latitude 39° 30' N. Longitude, 79° 33' W. Elevation, 3,207 feet.]

With the exception of the station located on Small Mountain (one of the Briery Range), near Leonard, which has an elevation of 4,242 feet (but only a short record), this is the highest station in the State.

The maximum and minimum thermometers are exposed in a cotton-region shelter, which faces the north; and the rain gage has a free exposure in an open yard.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	37	62	19	-11	31	22	6.0	12		3.7	12.6	6.0	W.
January.....	26	35	62	18	-5	30	25	4.2	10	2.4	5.6	26.5	8.0	W.
February.....	23	32	75	14	-24	29	19	3.8	10	3.0	6.9	12.5	6.0	W.
Winter mean.....	26	35		17				14.0	32	(?)	16.2	51.6		W.
March.....	39	49	76	29	-11	46	33	4.6	10	3.8	4.6	14.6	13.0	W.
April.....	47	57	83	37	12	50	44	2.7	7	1.5	2.5	18.5	14.0	W.
May.....	61	72	85	49	25	64	59	3.9	6	1.5	5.3	T.	T.	W.
Spring mean.....	49	59		38				11.2	23	6.8	12.4	33.1		W.
June.....	64	75	90	54	33	67	60	8.9	12	7.8	12.3	0.0	0.0	W.
July.....	68	80	90	56	33	73	64	5.7	10	5.6	8.3	0.0	0.0	W.
August.....	67	80	90	55	34	74	64	5.5	7	7.2	3.0	0.0	0.0	W.
Summer mean.....	67	78		55				20.1	29	20.6	23.6	0.0		W.
September.....	62	75	90	48	29	71	55	2.7	6	1.0	0.6	0.0	0.0	W.
October.....	52	63	86	41	21	57	48	3.4	7	2.0	4.8	T.	1.0	W.
November.....	40	49	73	31	5	46	34	4.0	9	5.2	3.9	7.5	8.0	W.
Fall mean.....	51	62		40				10.1	22	8.2	9.3	7.5		W.
Annual mean.....	48	59	90	38	-24			55.4	106	(?)	61.5	92.2	14.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1898	Dec. 9, 10, 14, 28.....	None.	1902	Jan. 5; Feb. 3, 5, 8, 19, 20; Dec. 10.	None.
1899	Feb. 8-15.....	June 8; July 23, 24; Aug. 19, 20.	1903	Jan. 1, 9, 12, 13, 19; Feb. 17-21; Dec. 26, 30.	Do.
1900	Jan. 29, 30; Feb. 1, 2, 18, 20, 24-26; Mar. 17.	July 17; Sept. 10.			
1901	Feb. 23; Mar. 6, 7; Dec. 16, 20-22.	5 months missing.			

WEST VIRGINIA.

Eastern Slope: MINERAL COUNTY. Station: BURLINGTON.

J. W. VANDIVER, Observer.

[Established by the U. S. Weather Bureau January 1, 1894. Latitude, 39° 21' N. Longitude, 78° 55' W. Elevation, 875 feet.]

The station is located in the center of the village of Burlington, which is situated in Pattersons Creek Valley, on the North Branch of the Potomac River. The valley is about three-fourths of a mile wide, flanked on the eastward by Middle Ridge and on the westward by various unnamed foot ridges of the Alleghenies, the main ridge being distant about 8 miles. The county ranges in elevation from 800 to 2,500 feet, and consists mostly of high uplands and narrow valleys.

The maximum and minimum thermometers have a good exposure facing the north and the rain gage is well exposed in the yard.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	32	42	70	21	0	36	27	2.6	4	1.8	5.8	3.7	10.0	NW.
January.....	30	40	67	21	-18	36	24	2.2	5	0.8	2.0	0.5	8.0	W.
February.....	29	39	73	18	-17	34	22	3.2	5	3.0	0.2	8.1	8.5	W.
Winter mean.....	31	40		20				8.0	14	5.6	8.0	12.3		W.
March.....	42	53	83	30	-5	49	34	3.5	6	3.3	2.4	6.3	22.0	W.
April.....	50	63	92	37	13	55	47	2.7	5	0.8	5.5	0.2	12.0	W.
May.....	62	76	94	48	26	66	58	3.8	7	1.4	7.0	0.0	0.0	W.
Spring mean.....	51	64		38				10.0	18	5.5	14.9	6.5		W.
June.....	69	82	95	56	33	72	64	3.7	8	3.6	5.6	0.0	0.0	W.
July.....	73	87	102	62	40	77	72	2.9	8	4.2	1.2	0.0	0.0	W.
August.....	72	84	100	60	44	76	70	3.5	7	1.3	7.0	0.0	0.0	W.
Summer mean.....	72	84		59				10.1	23	9.1	13.8	0.0		W.
September.....	65	78	100	51	29	71	63	2.9	5	1.9	2.4	0.0		W.
October.....	54	67	89	41	20	59	49	2.1	3	1.6	0.2	T.	T.	W.
November.....	42	54	75	31	10	49	37	2.3	5	4.1	2.3	1.0	3.0	NW.
Fall mean.....	54	67		41				7.3	13	7.6	4.9	1.0		W.
Annual mean.....	52	64	102	40	-18			35.4	68	27.8	41.6	19.8	22.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Dec. 29.....	May 17; June 3, 14, 17, 22-26, 29, 30; July 1, 13, 16, 18-20, 25-29; Aug. 1, 8-10, 15; Sept. 9, 10, 15.	1899	Jan. 2, 3; Feb. 1, 2, 10, 11, 13, 15.	Apr. 30; June 4-8, 16, 20, 23, 24; July 3, 4, 12, 13, 16, 20-24, 27-29; Aug. 2-5, 10-13, 19, 22-25; Sept. 1-3, 5, 6, 8.
1895	Jan. 13, 15; Feb. 1, 3, 6, 8, 9, 11; 6 months missing.	May 10, 29-31; June 1-4, 20, 25; 6 months missing.	1900	Feb. 20, 27; Mar. 18....	May 13-17; June 11, 26, 27, 29; July 3-8, 15-21; Aug. 6-19, 25-27, 30, 31; Sept. 1-10, 27, 28.
1896	Feb. 18, 19; Mar. 13, 14.	Apr. 16-20; May 9-12; June 21; July 27, 29; Aug. 5-7, 9, 10, 12.; Sept. 11.	1901	Dec. 22.....	May 24; June 13, 25, 29, 30; July 1-6, 11, 16-30; Aug. 3, 4, 9, 10.
1897	None.....	June 16, 29, 30; July 2-10; Aug. 3, 4, 14, 15; Sept. 6-11, 13-16.	1902	Feb. 4, 14, 20.....	May 19; June 12-14; July 3-6, 8, 9, 14, 15, 17, 18, 27; Aug. 31; Sept. 1.
1898	do.....	June 8, 11, 25, 26, 30; July 1-4, 8, 16-18, 20, 24, 25, 28-31; Aug. 1-4, 7, 17, 23, 24, 30, 31; Sept. 1-3.	1903	Jan. 14; Feb. 18-21....	July 1-4, 9-11, 26, 29, 30; Aug. 25, 28.

WEST VIRGINIA.

Eastern Panhandle: BERKELEY COUNTY. Station: MARTINSBURG.

GEORGE W. VAN METRE, Observer.

[Established by the U. S. Weather Bureau January 1, 1893. Latitude, 39° 27' N. Longitude, 77° 58' W. Elevation, 435 feet.]

The station is located near the center of the city of Martinsburg. The contour of the county, while somewhat hilly, is yet comparatively level. This county forms a part of the Valley of Virginia. The heights of the hills do not much exceed 500 feet.

The maximum and minimum thermometers (standard Weather Bureau instruments) are located in a cotton region shelter, which has a good exposure about 4 feet above the ground over sod. The rain gage is a standard Weather Bureau instrument, and is exposed in the clear about 20 feet from surrounding objects.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	34	44	70	25	- 3	37	28	2.6	5	1.8	5.2	3.3	9.0	W.
January.....	31	39	66	22	- 13	37	23	2.1	5	1.8	1.6	4.6	6.5	NW.
February.....	31	39	66	22	- 13	35	23	2.7	5	4.5	0.2	9.5	18.0	NW.
Winter mean.....	32	41	.....	23	.....	.....	.....	7.4	15	8.1	7.0	17.4	.....	NW.
March.....	40	50	82	30	- 1	48	32	3.1	7	3.0	3.1	6.2	12.5	NW.
April.....	51	63	93	40	21	56	48	3.2	6	1.6	6.8	0.4	2.0	NW.
May.....	62	75	96	50	31	66	60	4.2	10	0.3	8.4	0.0	0.0	S.
Spring mean.....	51	63	.....	40	.....	.....	.....	10.5	23	4.9	18.3	6.6	.....	NW.
June.....	72	83	99	60	40	78	65	3.6	8	3.6	5.7	0.0	0.0	S.
July.....	75	86	104	65	49	78	71	3.7	8	3.5	5.6	0.0	0.0	S.
August.....	74	85	100	63	46	78	70	3.2	7	2.6	7.4	0.0	0.0	NW.
Summer mean.....	74	85	.....	62	.....	.....	.....	10.5	23	9.7	18.7	0.0	.....	S.
September.....	67	80	98	54	34	71	64	2.5	5	3.8	2.1	0.0	0.0	NW.
October.....	55	66	90	44	23	60	49	1.6	5	1.2	0.6	T.	T.	NW.
November.....	43	54	79	32	15	48	38	2.7	6	3.0	3.7	0.7	3.0	NW.
Fall mean.....	55	67	.....	43	.....	.....	.....	6.8	16	8.0	6.4	0.7	.....	NW.
Annual mean.....	53	64	104	42	- 13	.....	.....	35.2	77	30.7	50.4	24.7	18.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	None.....	June 25; July 13, 14, 20, 21.	1899	Feb. 1, 9-11, 14, 15.....	July 28; Aug. 21.
1895	Jan. 13; Feb. 3, 6, 8; Dec. 14.	May 31; June 2-4; July 21; Aug. 11, 25; Sept. 24.	1900	None.....	July 4-8, 12, 16-20; Aug. 7-13, 16, 27; Sept. 7, 12.
1896	Mar. 14.....	July 28; Aug. 8, 10, 13.	1901	.....do.....	June 30; July 1-3, 30.
1897	None.....	July 8; Sept. 11, 12, 14.	1902	Feb. 4.....	June 13, 14, 16; July 4, 6, 18, 19; Sept. 2.
1898	Dec. 15.....	June 27; July 2-6.	1903	Feb. 18-20.....	July 3, 4, 11, 12, 31; Aug. 25, 26.

WEST VIRGINIA.

Central Ohio Valley: WOOD COUNTY. Station: PARKERSBURG.

E. C. Vose, Section Director.

[Established by the Signal Service July 1, 1888. Latitude, 39° 16' N. Longitude, 81° 36' W. Elevation, 615 feet.]

Since its establishment the station has been located in the United States post-office and court-house building, which is situated on the corner of Fifth and Juliana streets. The city lies in a valley on the east bank of the Ohio River at its junction with the Little Kanawha River.

The thermometers are exposed in a standard shelter 11 feet above the roof of the building. The dry and wet bulb thermometers are 77 feet above the ground, and the maximum and minimum thermometers are 79 feet above the ground.

The rain gage is located on a platform a few feet above the roof of the building and 70 feet above the ground.

The anemometer and wind vane are exposed on a combined wind vane and anemometer support 20 feet above the roof and 84 feet above the ground.

The sunshine record is from seven years, 1897-1903. Remainder of tabulated data is from the full period of observation, fifteen and one-half years, July 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing w.d.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p.m.	Absolute, 8 p.m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	36	43	72	28	-5	47	27	2.7	14	3.4	4.2	5.9	8.6	80	1.09	77	1.63	82	28	S.
January.....	33	42	73	26	-11	42	22	3.4	16	5.5	4.3	8.0	6.4	84	1.63	78	1.51	92	30	W.
February.....	33	41	76	25	-27	43	22	3.7	14	1.0	5.7	8.2	12.0	83	1.61	78	1.51	105	35	W.
Winter mean.....	34	42	.....	26	.....	.....	.....	9.8	44	9.9	14.2	22.1	.....	82	1.64	77	1.55	93	31	W.
March.....	42	52	86	33	4	52	35	3.7	16	2.9	7.0	6.9	7.6	81	2.07	72	1.84	128	35	W.
April.....	53	64	93	■	20	60	48	3.0	12	1.3	3.4	1.7	7.0	75	2.85	62	2.36	181	■	NW
May.....	64	75	94	52	31	70	59	3.4	13	2.2	6.6	T.	1.0	75	4.31	65	3.73	224	49	S.
Spring mean.....	53	64	.....	43	.....	.....	.....	10.1	41	6.4	17.0	8.6	.....	77	3.08	66	2.64	178	44	.....
June.....	72	82	99	61	42	75	67	4.9	15	4.5	4.8	0.0	0.0	78	5.82	67	5.01	240	56	S.
July.....	75	86	102	64	48	80	70	4.8	11	2.2	6.1	0.0	0.0	77	6.34	66	5.44	279	58	S.
August.....	74	84	98	63	45	79	70	3.5	11	1.9	5.8	0.0	0.0	82	6.13	69	5.16	240	57	S.
Summer mean.....	74	84	.....	63	.....	.....	.....	13.2	37	8.6	16.7	0.0	.....	79	6.10	67	5.20	253	57	S.
September.....	68	78	99	56	33	73	62	2.9	9	1.8	8.4	0.0	0.0	83	4.77	71	4.08	199	57	SW.
October.....	55	66	89	45	20	63	49	2.3	9	1.4	3.8	T.	T.	83	3.15	70	2.66	159	55	SW.
November.....	44	53	78	31	15	52	39	3.0	13	2.3	2.6	1.2	2.0	81	2.22	74	2.03	92	30	SW.
Fall mean.....	56	66	.....	44	.....	.....	.....	8.2	31	5.3	14.8	1.2	.....	82	3.38	72	2.92	150	47	SW.
Annual mean.....	54	64	102	44	-27	.....	.....	41.3	153	30.2	62.7	31.9	12.0	80	3.55	71	3.08	168	45	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 23, 29.....	June 22; July 19; Aug. 9; Sept. 7.	1899	Jan. 2; Feb. 1, 8-14....	June 5, 23; Aug. 20; Sept. 1, 3, 5-7.
1895	Jan. 12, 13; Feb. 7-9, 11.	June 1-4, 26; July 19, 20; Aug. 10; Sept. 18-22.	1900	Feb. 25.....	July 15-17; Aug. 6-12; Sept. 9, 10.
1896	Feb. 20.....	Aug. 10.	1901	Dec. 16.....	June 30; July 1, 16, 21, 22, 24, 27-29; Aug. 10.
1897	Jan. 25, 26, 28.....	July 3-5, 7; Aug. 4.	1902	None.....	July 17; Aug. 30.
1898	Dec. 14; Feb. 2, 3.....	July 2, 3; Sept. 1.	1903	Feb. 19.....	Aug. 25.

WEST VIRGINIA.

North Central: HARRISON COUNTY. Station: LOST CREEK.

ALLEN SMITH, Observer.

[Established by the U. S. Weather Bureau May 1, 1895. Latitude, 39° 7' N. Longitude, 80° 26' W. Elevation, 1,026 feet.]

The station is located west of the town of Lost Creek, on a moderately elevated hill. The general character of the surface is that of rounded hills, ranging in elevation from 1,000 to 1,500 feet. The maximum and minimum thermometers are well exposed in a cotton-region shelter, and the rain gage has a free exposure in an open lot.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	43	71	24	- 7	37	27	3.7	10	2.5	2.4	5.2	5.0	W.
January.....	34	44	70	24	-20	37	30	3.1	12	2.5	5.6	6.4	8.0	W.
February.....	28	39	80	18	-35	34	25	3.5	12	6.5	1.9	5.5	3.5	W.
Winter mean.....	32	42	.....	22	.....	.....	.....	10.3	34	11.5	9.9	17.1	.....	W.
March.....	44	57	81	33	- 1	51	37	4.6	12	6.6	7.5	6.2	11.5	W.
April.....	51	63	91	36	- 2	52	46	3.3	9	4.0	2.9	1.8	10.0	W.
May.....	62	77	93	47	25	64	60	4.2	10	3.2	4.1	0.0	0.0	W.
Spring mean.....	52	66	.....	39	.....	.....	.....	12.1	31	13.8	14.5	8.0	.....	W.
June.....	69	81	97	56	36	73	63	4.1	12	4.2	1.8	0.0	0.0	W.
July.....	73	87	99	60	40	78	70	5.7	11	2.4	4.5	0.0	0.0	W.
August.....	71	86	97	58	41	75	67	3.6	7	2.1	9.3	0.0	0.0	W.
Summer mean.....	71	85	.....	58	.....	.....	.....	13.4	30	8.7	15.6	0.0	.....	W.
September.....	66	82	97	48	31	69	62	2.8	6	1.6	2.3	0.0	0.0	W.
October.....	55	73	91	39	18	60	50	2.0	5	2.2	4.9	T.	T.	W.
November.....	44	56	78	31	3	49	36	2.9	8	2.9	2.6	1.6	2.0	W.
Fall mean.....	55	70	.....	40	.....	.....	.....	7.7	19	6.7	9.8	1.6	.....	W.
Annual mean.....	53	66	99	39	-35	.....	.....	43.5	114	40.7	49.8	26.7	11.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	.....	May 10, 30, 31; June 1-4, 16, 19, 25, 26; July 6, 7, 17, 19, 20, 25; Aug. 9-12, 15-17, 23, 24, 26-28, 30; Sept. 10, 11, 18, 19, 22, 23. (8 months missing.)	1900	Jan. 4, 28-31; Feb. 1, 3, 19, 20, 25, 27.	May 15-17; June 6, 10, 11, 25, 26; July 1, 2, 4-7, 15-20; Aug. 5-12, 14, 15, 17, 19, 20, 22, 26, 27, 30, 31; Sept. 3, 5-12, 28, 29; Oct. 3, 6.
1896	Feb. 20 (8 months missing).	Aug. 3, 4; Sept. 10, 12-16. (7 months missing.)	1901	Jan. 20; Dec. 16, 20-22.	June 11, 25, 27-30; July 1-5, 11, 12, 15-30; Aug. 7-11, 17-20.
1897	(7 months missing)...	June 8-11, 25, 30; July 1-3, 7, 8, 16, 17, 20, 22-25, 28-30; Aug. 3, 7, 23, 24; Sept. 1-4, 6; Oct. 4.	1902	Feb. 14, 19, 20; Mar. 6.	Apr. 22; May 5; June 12-15; July 4-9, 15-18, 27, 28; Aug. 2, 3, 9, 29-31; Sept. 8, 23.
1898	Feb. 2-4; Dec. 14, 15..	Apr. 30; June 5-8, 23, 24; July 2-5, 10, 13, 16, 21, 23-25, 27, 29; Aug. 4, 14, 20, 21, 23-26, 28-30; Sept. 1-8.	1903	Jan. 10; Feb. 18-21; Dec. 18.	May 21; July 2-5, 8-10, 27, 28; Aug. 22-28; Sept. 10, 12-14.
1899	Jan. 2; Feb. 1, 2, 9-15; Dec. 31.				

WEST VIRGINIA.

Central Ohio Valley: MASON COUNTY. Station: POINT PLEASANT.

W. D. HOLMES, Observer.

[Established by the U. S. Weather Bureau January 1, 1893. Latitude, 38° 53' N. Longitude, 82° 7' W. Elevation, 653 feet.]

The station is located in the town of Point Pleasant, on the east bank of the Ohio River. The valley at this place is quite narrow, and the hills rise to a considerable height directly to the eastward of the town. The river is perhaps 1,000 feet wide at this point. The maximum and minimum thermometers are well exposed at a height of about 5 feet from the ground, and the rain gage has a free exposure in the yard about 30 feet from the house.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 35	° F. 45	° F. 70	° F. 26	° F. - 5	° F. 38	° F. 27	In. 3.1	11	In. 4.4	In. 2.6	In. 1.6	In. 10.0	SW.
January.....	33	42	73	24	- 14	30	22	3.6	12	1.5	8.0	4.9	10.0	SW.
February.....	32	42	75	23	- 26	30	25	3.6	10	1.3	1.9	5.0	13.0	SW.
Winter mean.....	33	43		24				10.3	33	7.2	12.5	11.5		SW.
March.....	45	56	84	34	4	52	36	3.7	14	2.4	5.8	5.0	9.0	S.
April.....	55	68	95	42	23	61	50	3.0	12	6.9	1.5	0.5	2.0	SE.
May.....	66	80	98	53	31	72	63	3.5	13	5.8	3.5	0	T.	SE.
Spring mean.....	56	68		43				10.2	39	15.1	10.8	5.5		SE.
June.....	73	85	102	61	44	76	68	4.8	12	7.3	2.4	0.0	0.0	SE.
July.....	77	89	102	66	47	81	72	3.7	10	0.7	2.8	0.0	0.0	SW.
August.....	75	86	99	64	50	78	73	3.2	9	1.6	6.4	0.0	0.0	S.
Summer mean.....	75	87		64				11.7	31	9.6	11.6	0.0		S.
September.....	70	83	100	57	37	73	67	2.2	7	2.3	2.1	0.0	0.0	SE.
October.....	58	71	90	45	19	67	51	1.9	7	0.2	3.2	0.0	0.0	SE.
November.....	45	56	81	34	14	53	41	3.2	11	2.6	2.7	0.5	4.0	SW.
Fall mean.....	58	70		45				7.3	25	5.1	8.0	0.5		SE.
Annual mean.....	56	67	102	44	- 26			39.5	128	37.0	42.9	17.5	13.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 28, 29.....	June 11, 12, 22-24, 30; July 1, 12, 13, 17-20, 26-28, 31; Aug. 1, 8-10; Sept. 6, 9.	1899	Feb. 1, 10-15.....	May 3; June 4-6, 22; July 23, 24, 28, 29; Aug. 3, 4, 20; Sept. 1-3, 5, 7, 23.
1895	Jan. 1, 12, 13; Feb. 8-11.	May 5, 10, 30, 31; June 1-4, 26; July 17-21; Aug. 9, 10, 15-17; Sept. 19, 20, 22.	1900	Feb. 25.....	May 15-18; July 6, 7, 16-17; Aug. 7-12, 19; Sept. 6-12.
1896	Feb. 20.....	May 10; July 27, 29; Aug. 5, 9, 10.	1901	Dec. 16.....	Apr. 30; June 25, 29, 30; July 1, 2, 6, 11, 16, 21, 22, 24, 26-29; Aug. 10.
1897	Jan. 25, 26, 28, 30; Dec. 14.	June 15, 30; July 2-10; Aug. 3, 4; Sept. 10-12, 14-16.	1902	None.....	May 5; June 12; July 5, 7, 9, 17, 18, 27.
1898	None.....	June 10, 11; July 1-3, 7, 8, 19, 20; Aug. 31; Sept. 1, 2.	1903	Feb. 19.....	July 3, 4, 9; Aug. 22-25.

WEST VIRGINIA.

West Central: GILMER COUNTY. Station: GLENVILLE.

LEVI JOHNSON, Observer.

[Established by the United States Weather Bureau January 1, 1893. Latitude, 38° 56' N. Longitude, 80° 54' W. Elevation, 738 feet.]

The station is located in the town of Glenville, on the side of a hill, about 80 feet above the Little Kanawha River. The maximum and minimum thermometers are exposed in a cotton region shelter, which is located about 40 feet from the house, and has a good exposure. The rain gage is located in the yard and has a free exposure.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest montly mean.	Lowest montly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.		Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	42	70	26	-10	37	25	4.0	13	2.8	3.8	4.2	17.5	NW.
January.....	31	39	74	23	-18	36	21	3.8	13	2.7	6.6	8.5	5.0	NW.
February.....	31	39	76	22	-29	36	22	4.0	13	5.2	2.8	10.7	9.0	NW.
Winter mean.....	32	40	.....	24	.....	.....	.....	11.8	39	10.7	13.2	23.4	.....	NW.
March.....	42	52	82	33	-2	51	36	4.2	15	3.7	7.6	7.2	11.0	NW.
April.....	52	63	89	40	11	58	48	3.7	13	1.4	3.0	1.5	4.5	SW.
May.....	62	75	98	50	27	68	57	4.0	12	4.3	4.0	0.0	0.6	SW.
Spring mean.....	52	63	.....	41	.....	.....	.....	11.9	40	9.4	14.6	8.7	.....	SW.
June.....	69	81	95	59	40	72	66	5.0	13	5.0	3.8	0.0	0.0	SW.
July.....	76	85	100	63	45	79	70	5.4	11	4.4	7.3	0.0	0.0	SW.
August.....	73	84	99	61	47	78	70	3.6	9	2.4	7.7	0.0	0.0	SW.
Summer mean.....	73	83	.....	61	.....	.....	.....	14.0	33	11.8	18.8	0.0	.....	SW.
September.....	67	79	99	55	35	72	64	3.1	8	0.9	3.9	0.0	0.0	SE.
October.....	54	66	93	42	15	61	48	2.5	8	3.5	4.9	T.	T.	SW.
November.....	42	53	79	33	10	51	37	3.6	12	4.6	3.0	0.9	3.0	NW.
Fall mean.....	54	66	.....	43	.....	.....	.....	9.2	28	9.0	11.8	0.9	.....	SW.
Annual mean.....	52	63	100	42	-29	.....	.....	46.9	140	40.9	58.4	33.0	17.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Dec. 28, 29.....	July 17-20, 26, 28; Aug. 8-10; Sept. 7, 9.	1901	Dec. 16, 22.....	June 11, 13, 15, 16, 24, 25, 27-30; July 1-3, 5, 11, 15-17, 19-30; Aug. 3, 8-11, 17-22, 29, 30; Sept. 7.
1895	Jan. 12, 13; Feb. 3, 5, 6, 8-11.	May 5, 31; June 1-4, 26; July 19-21; Aug. 9-11, 15, 16, 28; Sept. 19, 20.			
1896	Jan. 4, 5; Feb. 18, 20-22.	July 27; Aug. 10.	1902	Feb. 14; Mar. 6.....	May 4, 6, 19, 21, 22; June 12-14; July 3-7, 9, 17, 18, 26-28; Aug. 3, 30.
1897	Jan. 25, 26, 28, 30, 31.	July 4, 5; Aug. 4; Sept. 10-12, 14-16.			
1898	Feb. 2-4; Dec. 14, 15.	July 1-3; Sept. 1.	1903	Jan. 9, 10; Feb. 18, 19.	July 1, 3-5, 7-10, 18, 24-26, 28, 29; Aug. 22-25, 28; Sept. 10, 12-13-16.
1899	Jan. 2; Feb. 1, 9-15; Dec. 30.	June 5, 23, 26; July 22-24; Aug. 20, 21, 23; Sept. 3, 5, 6; Oct. 6, 7.			
1900	Feb. 1, 25.....	May 13-17; June 6, 10, 11, 26, 29; July 2-7, 11, 15-17, 19-22, 24; Aug. 5-9, 11-13, 15, 19, 23, 26-31; Sept. 1-3, 5-11, 13, 25-27.			

WEST VIRGINIA.

Eastern Plateau: RANDOLPH COUNTY. Station: ELKINS.

LOUIS DORMAN, Observer.

[Established by the Weather Bureau January 1, 1899. Latitude, 38° 53' N. Longitude, 79° 40' W. Elevation, 1,920 feet.]

This station is situated in the business district of the town of Elkins, in Tygarts Valley, the width of which is about 1 mile. The hills surrounding the valley are over 1 mile distant, and therefore do not interfere with the proper exposure of the anemometer. All instruments, except the barometers and barograph, are exposed on the roof of the office building. No high buildings are in its vicinity to interfere with their proper exposure. The thermometers are exposed in a standard instrument shelter. The height of the instruments from the ground is as follows: Anemometer, 50.2 feet; wind vane, 51.1 feet; rain and snow gages, 31.4 feet; sunshine recorder, 44 feet; thermograph, 41 feet; dry and wet thermometers, 41.1 feet; maximum thermometer, 42.3 feet; minimum, 42.5 feet.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1899, TO DECEMBER 31, 1903.

Month.	Temperature.								Precipitation.					Mean humidity.				Total sunshine		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 30	° F. 39	° F. 66	° F. 20	° F. - 6	° F. 32	° F. 25	In. 4.3	17	2.2	5.9	In. 7.5	In. 4.6	P.ct. 86	Gr.s. 1.33	P.ct. 80	Gr.s. 1.48	76	26	W.
January.....	30	39	68	20	-18	31	28	3.5	17	3.8	3.9	13.1	6.8	85	1.38	77	1.49	68	22	W.
February.....	26	38	74	16	-21	32	23	3.5	19	5.7	2.9	13.6	6.3	85	1.15	75	1.33	64	22	W.
Winter mean.....	29	39	.....	19	.....	.....	.....	11.3	53	11.7	12.7	34.2	.....	85	1.29	77	1.43	69	23	W.
March.....	41	51	77	30	0	49	35	4.2	17	3.6	4.4	8.7	9.4	84	2.07	71	2.34	105	28	W.
April.....	47	59	88	35	14	50	44	3.3	14	3.4	3.6	8.1	16.0	82	2.51	66	2.51	158	30	N.W.
May.....	60	73	90	46	25	62	57	4.8	14	5.4	4.1	T.	T.	82	3.98	67	4.12	222	50	N.
Spring mean.....	49	61	.....	37	.....	.....	.....	12.3	45	12.4	12.1	16.8	.....	83	2.85	68	2.92	162	39	W.
June.....	65	77	92	54	36	68	61	5.7	16	5.5	5.2	0.0	0.0	86	5.11	77	5.40	200	45	N.
July.....	71	83	94	58	44	74	69	4.8	14	3.6	6.2	0.0	0.0	88	5.97	79	6.51	258	53	W.
August.....	70	82	91	57	42	72	67	2.9	12	2.5	3.6	0.0	0.0	91	5.78	83	6.21	198	47	N.
Summer mean.....	69	81	.....	56	.....	.....	.....	13.4	42	11.6	15.0	0.0	.....	88	5.62	80	6.04	219	48	N.
September.....	62	76	92	49	26	67	60	3.4	10	1.7	4.8	0.0	0.0	93	4.36	84	4.99	167	45	N.
October.....	53	67	87	39	20	57	51	1.7	8	1.8	2.8	0.0	0.0	91	3.00	75	3.17	137	40	N.
November.....	40	51	74	29	5	47	32	3.5	13	2.7	3.9	5.4	5.5	88	2.00	77	2.11	84	28	W.
Fall mean.....	52	65	39	8.6	31	6.2	11.5	5.4	91	3.12	79	3.42	129	38	N.
Annual mean.....	50	61	94	38	-21	45.6	171	41.9	51.3	56.4	16.0	87	3.22	76	3.47	145	37	W.

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DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1899	Jan. 1, 2; Feb. 1, 8-15.	July 3; Aug. 25; Sept. 7.	1901	Jan. 20; Mar. 6.....	June 30; July 2, 21, 22, 24, 27, 28.
1900	Jan. 3, 4, 29-31; Feb. 1, 19, 20, 25, 27.	July 17; Aug. 10, 11; Sept. 1, 9-11.	1902	Feb. 20.....	June 14.
			1903	Feb. 18, 19, 21.....	July 4, 5; Aug. 28.

WEST VIRGINIA.

South Central: FAYETTE COUNTY. Station: POWELLTON.

D. SWAIN, Observer.

[Established by the U. S. Weather Bureau June 1, 1894. Latitude, 38° 5' N. Longitude, 81° 19' W. Elevation, 904 feet.]

The station is located in the business district of the town of Powellton. The general contour of the country is that of a valley about 550 feet wide, surrounded by mountains about 800 feet high. The maximum and minimum thermometers are well exposed in a cotton-region shelter, and the rain gage also has a good exposure.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	34	43	70	25	- 5	41	27	3.6	9	0.9	3.0	4.8	5.0	
January.....	34	42	74	25	- 5	38	28	4.1	12	1.8	4.4	6.1	8.0	
February.....	33	42	68	23	-20	41	29	3.1	12	5.2	2.1	9.5	7.0	
Winter mean.....	34	42		24				10.8	33	7.9	9.5	20.4		
March.....	46	54	83	38	1	55	39	5.2	13	4.9	5.2	7.0	6.0	
April.....	53	66	93	41	20	59	48	3.2	11	5.2	2.7	1.7	6.0	
May.....	64	77	93	51	31	68	58	4.7	12	2.9	3.8	T.	1.0	
Spring mean.....	55	66		43				13.1	36	13.0	11.7	8.7		
June.....	70	82	96	58	42	78	68	5.3	12	5.2	2.8	0.0	0.0	
July.....	73	84	98	63	46	78	68	3.5	11	4.6	7.6	0.0	0.0	
August.....	72	84	99	60	42	74	70	3.8	9	1.9	9.6	0.0	0.0	
Summer mean.....	72	84		60				12.6	32	11.7	20.0	0.0		
September.....	66	80	99	52	33	69	62	2.4	6	1.3	1.8	0.0	0.0	
October.....	53	67	92	40	16	58	44	1.4	5	1.1	3.6	T.	0.1	
November.....	44	54	74	32	10	50	37	3.0	10	1.7	3.4	1.5	3.1	
Fall mean.....	54	67		41				6.8	21	4.1	8.8	1.5		
Annual mean.....	53	65	99	42	-20			43.3	122	36.7	50.0	30.6	8.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 29.....	June 23.	1899	Feb. 9-14; Dec. 31...	None.
1895	Jan. 12, 13; Feb. 7-11..	July 19.	1900	Missing.....	Missing.
1896	Feb. 21.....	None; Aug. missing.	1901	None.....	June 30; July 1, 21, 22, 24, 26-29.
1897	Dec. 24.....	July 4.	1902	.....do.....	June 12; July 5-7, 18, 19, 27.
1898	Jan. 2; Feb. 3.....	None.	1903	Feb. 18, 19; Dec. 28...	July 10, 28; Aug. 23-25, 29; Sept. 11, 12.

NORTH CENTRAL DISTRICTS.

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WEST VIRGINIA.

East Central (Mountain District): POCAHONTAS COUNTY. Station: MARLINTON.

S. L. BROWN, Observer.

[Established by the U. S. Weather Bureau January 1 1893. Latitude, 38° 12' N. Longitude, 80° 47' W. Elevation, 2,160 feet.]

The station is located in the northeastern portion of the town of Marlinton. The valley is narrow and level at this place, and is probably from one-half to three-fourths of a mile wide. The maximum and minimum thermometers are exposed in a cotton-region shelter, which has a free exposure facing the north; the rain gage has a free exposure in the yard.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	30	41	67	19	-15	34	22	3.1	8	3.1	3.7	6.6	6.0	W.	
January.....	30	41	79	19	-11	34	25	2.8	8	3.3	5.6	5.9	6.0	W.	
February.....	30	40	71	20	-23	33	26	3.8	9	5.3	1.5	11.5	15.0	W.	
Winter mean.....	30	41		19				9.7	25	11.7	10.8	24.0		W.	
March.....	39	52	85	27	-2	42	35	4.1	11	6.3	5.2	6.9	15.0	W.	
April.....	48	61	93	35	14	53	43	3.2	8	1.6	4.3	1.1	1.5	W.	
May.....	59	74	96	45	27	66	53	4.8	10	7.7	5.3	T.	T.	NW.	
Spring mean.....	49	62		36				12.1	29	15.6	14.8	8.0		W.	
June.....	67	80	100	54	37	72	62	5.2	13	1.9	7.5	0.0	0.0	S.	
July.....	71	82	92	59	42	73	69	5.4	13	3.0	6.8	0.0	0.0	SW.	
August.....	69	81	90	58	42	72	67	4.6	10	3.4	9.2	0.0	0.0	SW.	
Summer mean.....	69	81		57				15.2	36	8.3	23.5	0.0		SW.	
September.....	63	74	90	50	29	70	61	3.0	7	4.0	3.3	0.0	0.0	W.	
October.....	51	66	83	36	10	56	43	2.4	5	1.6	4.5	0.0	0.0	NW.	
November.....	40	52	82	28	3	44	33	3.3	8	0.8	3.8	2.2	3.0	NW.	
Fall mean.....	51	64		38				8.7	20	6.4	11.6	2.2		NW.	
Annual mean.....	50	62	100	38	-23			45.7	110	42.0	60.7	34.2	15.0	W.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Six months missing...	June 11, 12, 29, 30; six months missing.	1899	Jan. 2, 3; Feb. 1, 9, 10, 13-15; Dec. 27, 29, 31.	Aug. 5.
1895	Jan. 18, 19, 22; Dec. 14; four months missing.	Apr. 20-22, 25; May 30; June 2-4; four months missing.	1900	Jan. 4; Feb. 1, 18, 20, 25, 26; Mar. 17, 18.	July 17; Sept. 10.
1896	Jan. 4-6; Feb. 20-22; Dec. 25.	None.	1901	Feb. 1, 2; six months missing.	June 30; July 1, 23, 27, 28; six months missing.
1897	Jan. 25, 26, 28-31.	Do.	1902	Missing.	Missing.
1898	Feb. 2-4; Dec. 14, 15.	July 1-3.	1903	Dec. 1, 3, 27.	July 12.

WEST VIRGINIA.

Southeastern District: SUMMERS COUNTY. Station: HINTON.

S. W. WILLEY, Observer.

[Established by the U. S. Weather Bureau January 1, 1895. Latitude, 37° 40' N. Longitude, 80° 52' W. Elevation, 1,428 feet.]

The station is located in the town of Hinton, which is situated in a valley surrounded by mountains. The maximum and minimum thermometers are exposed in a cotton region shelter, and the rain gage has a good exposure.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing w.d.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	35	44	67	26	— 9	43	29	2.8	13	3.3	7.8	2.8	4.0	SW.
January.....	34	42	68	25	— 11	39	30	2.7	16	4.3	3.6	6.2	3.0	SW.
February.....	33	43	73	23	— 12	40	26	3.5	16	3.6	0.8	5.7	4.0	SW.
Winter mean.....	34	43		25				9.0	45	11.2	12.2	14.7		SW.
March.....	46	56	82	35	6	53	41	4.1	18	4.3	2.6	6.0	14.0	SW.
April.....	53	66	91	40	23	60	48	3.0	15	1.9	6.8	1.6	2.0	SW.
May.....	65	78	94	52	31	71	60	4.1	13	3.1	5.9	0.0	0.0	SW.
Spring mean.....	54	66		42				11.2	46	9.3	15.3	7.6		SW.
June.....	71	83	97	59	41	73	66	4.4	14	4.2	6.3	0.0	0.0	SW.
July.....	75	86	98	64	49	77	70	3.3	11	1.3	2.8	0.0	0.0	SW.
August.....	74	85	96	63	49	77	72	3.7	11	1.9	8.5	0.0	0.0	SW.
Summer mean.....	73	84		65				11.4	36	7.4	17.6	0.0		SW.
September.....	68	79	97	55	36	71	66	2.6	10	1.5	2.3	0.0	0.0	SW.
October.....	56	69	85	44	21	61	50	1.9	7	2.2	0.7	T.	T.	SW.
November.....	45	57	80	34	9	49	40	2.3	11	2.4	1.4	1.5	4.0	SW.
Fall mean.....	56	68		44				6.8	28	6.1	4.4	1.5		SW.
Annual mean.....	55	66	98	43	— 12			38.4	155	34.0	49.5	23.8	14.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	Jan. 12, 13; Feb. 7-9...	May 29-31; June 1-4, 20, 24-26; July 15, 16, 18-20; Aug. 2, 5, 6, 9-11, 13-15, 28, 29; Sept. 19, 20, 22.	1900	None.....	May 14-16; June 26; July 2-7, 11, 15-22; Aug. 6-12, 15, 16, 19, 25-27; Sept. 6-11.
1896	Feb. 21.....	Apr. 17, 18; May 7, 18; July 15, 25, 27-31; Aug. 5-7, 9-13, 15, 16; Sept. 11, 18, 19.	1901	do.....	May 24; June 6, 13, 20, 24-26; July 1-5, 11, 15-17, 21-24, 26.
1897	Jan. 28.....	June 15, 16, 19, 25, 29, 30; July 1-8, 10, 11, 23; Aug. 2-4; Sept. 7-16.	1902	do.....	May 2, 4-6, 22, 23; June 12-14, 30; July 3-6, 9, 14, 17-20, 26-28; Aug. 2, 3, 5, 31; Sept. 1.
1898	Feb. 2-4.....	May 19-21; June 8, 10, 11, 24, 25, 27; July 1-4, 16-18, 20, 21, 24, 25, 28, 29; Aug. 7, 8, 23, 24; Sept. 2.	1903	Feb. 18, 19.....	May 23, 24; July 1-4, 7-11, 26, 28, 29; Aug. 23-28; Sept. 8.
1899	Feb. 1, 9, 10, 13, 14; Dec. 30, 31.	May 16; June 4-8, 23, 24, 28; July 3, 5, 7, 12, 13, 15, 16, 20-25, 27-29; Aug. 1-5, 12-14, 18-21, 25, 26; Sept. 1-8.			

WEST VIRGINIA.

Southern Portion: McDOWELL COUNTY. Station: ELKHORN.

JOHN J. LINCOLN, Observer.

[Established by the U. S. Weather Bureau January 1, 1893. Latitude, 37° 24' N. Longitude, 81° 24' W. Elevation, 1,633 feet.]

The station is located in the town of Elkhorn, which is situated in a narrow valley between hills ranging from 200 to 1,000 feet high. The maximum and minimum thermometers are the standard Weather Bureau instruments, and they are exposed in a cotton region shelter, which is well located. The rain gage is exposed in an open flat.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	38	48	68	29	- 6	41	30	3.2	12	1.5	9.0	5.5	6.0	NW.	
January.....	35	44	67	26	-10	41	32	2.7	11	2.4	3.8	7.8	8.5	NW.	
February.....	36	45	75	26	-12	42	26	3.5	11	4.9	1.2	9.0	12.0	SW.	
Winter mean.....	36	45		27				9.4	34	8.8	14.0	22.3		NW.	
March.....	45	56	80	35	3	53	41	4.5	12	5.0	4.0	5.2	11.0	SW.	
April.....	53	65	87	42	19	59	47	3.3	12	5.5	5.9	1.7	6.0	SW.	
May.....	63	76	90	49	32	67	59	5.1	12	2.3	7.9	T.	0.5	SW.	
Spring mean.....	54	66		42				12.9	36	12.8	17.8	6.9		SW.	
June.....	70	81	94	58	38	72	65	5.5	14	2.7	10.8	0.0	0.0	SW.	
July.....	72	84	95	61	45	76	70	5.0	13	6.1	3.5	0.0	0.0	SW.	
August.....	72	83	94	61	46	74	70	3.8	11	1.9	6.0	0.0	0.0	SW.	
Summer mean.....	71	82		60				14.3	38	10.7	20.3	0.0		SW.	
September.....	66	78	94	54	33	70	64	2.8	8	0.5	2.0	0.0	0.0	SW.	
October.....	56	67	84	44	22	60	50	2.1	6	1.7	0.9	T.	T.	SW.	
November.....	46	56	75	35	9	53	40	2.9	8	3.5	1.3	2.6	3.5	SW.	
Fall mean.....	56	67		45				7.8	22	5.7	4.2	2.6		SW.	
Annual mean.....	54	65	95	43	-12			44.4	130	38.0	56.3	31.8	12.0	SW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Dec. 29.....	June 10, 12, 23, 24; Aug. 9, 10; Sept. 7.	1900	Feb. 1, 18.....	May 16; June 11; July 2, 3, 6, 15-19; Aug.
1895	Jan. 13; Feb. 8, 9.....	May 30; June 2-4; July 10.			6-12, 16, 19; Sept. 8, 10-12.
1896	Feb. 21.....	Aug. 5.	1901	None.....	June 12, 29, 30; July 2-4, 16, 21-29.
1897	Jan. 28.....	July 3, 4; Aug. 2, 3; Sept. 10, 11, 15, 16.	1902	.....do.....	May 4; June 12, 13; July 4-7, 9, 10, 17-19
1898	Feb. 2, 3.....	June 10, 11; July 1-3.			27.
1899	Feb. 1, 9, 10, 13, 14; Dec. 31.	June 4, 5, 23; July 15, 28; Aug. 2, 4, 13, 20, 25; Sept. 4-7.	1903	Feb. 19.....	July 3, 9-12; Aug. 25, 28.

KENTUCKY.

By HENRY B. HERSEY,
Inspector.

KENTUCKY.

The western and central portions of the State consist generally of open, rolling country, occasionally interspersed with ranges of hills. The eastern portion is hilly and increases in altitude to the south and east, becoming mountainous in the southeastern counties. The elevation along the Ohio River and throughout the western portion of the State ranges from 400 feet to 700 feet above sea level. In the central portion the elevation increases considerably, varying between 700 and 1,200 feet. In the southeast it is much higher, several peaks reaching up to nearly 3,000 feet altitude.

In practically all portions of the State the country is sufficiently rolling or hilly to give a fair amount of protection from harsh winds, differing materially in this respect from an open, prairie country. This feature is quite noticeable and makes the climate decidedly more agreeable than it would otherwise be.

The effect of the mountains in the southeastern part of the State is to increase the precipitation in that section and to give a greater diversity in temperature and other climatic features, dependent largely on the topographical conditions surrounding any particular locality.

The temperature is rather variable, sudden changes being somewhat frequent, and the annual range usually running from 105° to 120°. Temperatures of 100° or above are recorded at many stations nearly every summer and below zero nearly every winter. The periods of extreme heat or cold are usually of short duration.

Injurious frosts occur occasionally in the spring and sometimes, though less seldom, in the autumn.

The annual precipitation ranges from about 40 inches in the northern counties to about 53 inches in the extreme southeast. Deep snows are unusual, but occur occasionally in the eastern portion of the State and sometimes in other portions.

Severe local thunderstorms are somewhat frequent in the spring and summer months and are sometimes accompanied by hail and destructive winds. The area affected by these storms is nearly always quite small. Tornadoes sometimes occur but they are very rare.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adair (<i>see</i> Edmonton)		Central		Floyd (<i>see</i> Mount Sterling)		Eastern	
Allen (<i>see</i> Edmonton)		do.		Franklin (<i>see</i> Shelbyville)		Central	
Anderson (<i>see</i> Shelbyville)		do.		Fulton (<i>see</i> Cairo, Ill.)		Western	
Ballard (<i>see</i> Cairo, Ill.)		Western		Gallatin, (<i>see</i> Cincinnati, Ohio).		Central	
Barren (<i>see</i> Edmonton)		Central		Garrard (<i>see</i> Lexington)		do.	
Bath (<i>see</i> Mount Sterling)		Eastern		Grant (<i>see</i> Cincinnati, Ohio)		do.	
Bell	Middlesboro	do.	769	Graves (<i>see</i> Paducah)		Western	
Boons (<i>see</i> Cincinnati, Ohio)		Central		Grayson	Leitchfield	Central	764
Bourbon (<i>see</i> Lexington)		Eastern		Green (<i>see</i> Edmonton)		do.	
Boyd (<i>see</i> Mount Sterling)		do.		Greenup (<i>see</i> Mount Sterling)		Eastern	
Boyle (<i>see</i> Lexington)		Central		Hancock (<i>see</i> Leitchfield)		Western	
Bracken (<i>see</i> Cincinnati, Ohio).		Eastern		Hardin (<i>see</i> Leitchfield)		Central	
Breathitt, (<i>see</i> Mount Sterling).		do.		Harlan (<i>see</i> Middlesboro)		Eastern	
Breckinridge (<i>see</i> Leitchfield).		Central		Harrison (<i>see</i> Lexington)		do.	
Bullitt (<i>see</i> Louisville)		do.		Hart (<i>see</i> Leitchfield)		Central	
Butler (<i>see</i> Leitchfield)		Western		Henderson (<i>see</i> Evansville, Ind.).		Western	
Caldwell (<i>see</i> Earlington)		do.		Henry (<i>see</i> Shelbyville)		Central	
Calloway (<i>see</i> Paducah)		do.		Hickman (<i>see</i> Cairo, Ill.)		Western	
Campbell, (<i>see</i> Cincinnati, Ohio).		Eastern		Hopkins	Earlington	do.	767
Carlisle (<i>see</i> Cairo, Ill.)		Western		Jackson (<i>see</i> Eubank)		Eastern	
Carroll (<i>see</i> Cincinnati, Ohio)		Central		Jefferson	Louisville	Central	760
Carter (<i>see</i> Mount Sterling)		Eastern		Jessamine (<i>see</i> Lexington)		do.	
Casey (<i>see</i> Eubank)		Central		Johnson (<i>see</i> Mount Sterling)		Eastern	
Christian (<i>see</i> Earlington)		Western		Kenton (<i>see</i> Cincinnati, Ohio).		Central	
Clark (<i>see</i> Lexington)		Eastern		Knott (<i>see</i> Middlesboro)		Eastern	
Clay (<i>see</i> Middlesboro)		do.		Knox (<i>see</i> Middlesboro)		do.	
Clinton (<i>see</i> Edmonton)		Central		Larue (<i>see</i> Leitchfield)		Central	
Crittenden (<i>see</i> Earlington)		Western		Laurel (<i>see</i> Eubank)		Eastern	
Cumberland (<i>see</i> Edmonton)		Central		Lawrence (<i>see</i> Mount Sterling).		do.	
Daviess (<i>see</i> Evansville, Ind.).		Western		Lee (<i>see</i> Mount Sterling)		do.	
Edmonson (<i>see</i> Leitchfield)		Central		Leslie (<i>see</i> Middlesboro)		do.	
Elliott (<i>see</i> Mount Sterling)		Eastern		Letcher (<i>see</i> Middlesboro)		do.	
Estill (<i>see</i> Mount Sterling)		do.		Lewis (<i>see</i> Mount Sterling)		do.	
Fayette	Lexington	Central	762	Lincoln (<i>see</i> Eubank)		Central	
Fleming (<i>see</i> Mount Sterling)		Eastern		Livingston (<i>see</i> Paducah)		Western	

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Logan (<i>see</i> Earlinton).		Western.		Perry (<i>see</i> Middlesboro).		Eastern.	
Lyon (<i>see</i> Paducah).		do.		Pike (<i>see</i> Middlesboro).		do.	
McCracken.	Paducah.	do.	766	Powell (<i>see</i> Mount Sterling).		do.	
McLean (<i>see</i> Earlinton).		do.		Pulaski.	Eubank.	Central.	765
Madison (<i>see</i> Lexington).		Eastern.		Robertson (<i>see</i> Mount Sterling).		Eastern.	
Magoffin (<i>see</i> Mount Sterling).		do.		Rockcastle (<i>see</i> Eubank).		do.	
Marion (<i>see</i> Eubank).		Central.		Rowan (<i>see</i> Mount Sterling).		do.	
Marshall (<i>see</i> Paducah).		Western.		Russell (<i>see</i> Edmonton).		Central.	
Martin (<i>see</i> Mount Sterling).		Eastern.		Scott (<i>see</i> Lexington).		do.	
Mason (<i>see</i> Mount Sterling).		do.		Shelby.	Shelbyville.	do.	761
Meadel (<i>see</i> Louisville).		Central.		Simpson (<i>see</i> Edmonton).		do.	
Menifee (<i>see</i> Mount Sterling).		Eastern.		Spencer (<i>see</i> Shelbyville).		do.	
Mercer (<i>see</i> Lexington).		Central.		Taylor (<i>see</i> Edmonton).		do.	
Metcalfe.	Edmonton.	do.	768	Todd (<i>see</i> Earlinton).		Western.	
Monroe (<i>see</i> Edmonton).		do.		Trigg (<i>see</i> Paducah).		do.	
Montgomery.	Mount Sterling.	Eastern.	763	Trimble (<i>see</i> Louisville).		Central.	
Morgan (<i>see</i> Mount Sterling).		do.		Union (<i>see</i> Evansville, Ind.).		Western.	
Mullen (<i>see</i> Earlinton).		Western.		Warren (<i>see</i> Leitchfield).		Central.	
Nelson (<i>see</i> Shelbyville).		Central.		Washington (<i>see</i> Shelbyville).		do.	
Nicholas (<i>see</i> Mount Sterling).		Eastern.		Wayne (<i>see</i> Eubank).		do.	
Ohio (<i>see</i> Leitchfield).		Western.		Webster (<i>see</i> Earlinton).		Western.	
Oldham (<i>see</i> Shelbyville).		Central.		Whitley (<i>see</i> Middlesboro).		Eastern.	
Owen (<i>see</i> Shelbyville).		do.		Wolfe (<i>see</i> Mount Sterling).		do.	
Owsley (<i>see</i> Mount Sterling).		Eastern.		Woodford (<i>see</i> Lexington).		Central.	
Pendleton (<i>see</i> Cincinnati, Ohio).		do.					

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	
		° F.	° F.	° F.	° F.		° F.		Maximum above 90°. Minimum below 32°.
Louisville.	1	57	66	48	107	July, 1901.	-20	January, 1884.	32 70
Shelbyville.	2	56	67	45	107	do.	-23	February, 1899.	62 62
Lexington.	3	55	64	46	102	do.	-20	do.	19 83
Mount Sterling.	4	54	65	44	100	do.	-22	do.	23 94
Leitchfield.	5	56	66	45	103	do.	-26	do.	32 86
Eubank.	6	55	67	43	103	do.	-22	do.	33 96
Paducah.	7	60	70	50	112	do.	-12	do.	77 66
Earlington.	8	58	68	48	106	do.	-28	do.	49 68
Edmonton.	9	56	67	46	106	do.	-24	do.	28 81
Middlesboro.	10	56	68	44	100	June, 1894.	-20	do.	28 95

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.	Inches.	Inches.	Inches.	Inches.	Inches.
Louisville.	1	Oct. 29	Apr. 6	Sept. 24	May 14	44.5	12.1	11.6	9.2	11.5
Shelbyville.	2	Oct. 8	Apr. 14	Sept. 22	May 22	44.3	12.4	11.5	9.2	11.2
Lexington.	3	Oct. 25	Apr. 12	Sept. 30	May 20	42.5	11.6	12.0	8.2	10.7
Mount Sterling.	4	Oct. 9	Apr. 23	Sept. 21	do.	46.4	12.5	12.9	8.6	12.4
Leitchfield.	5	Oct. 20	Apr. 12	Sept. 30	Apr. 21	48.2	13.8	10.2	10.9	13.3
Eubank.	6	Oct. 10	Apr. 25	Sept. 14	May 20	46.8	13.6	11.9	8.8	12.5
Paducah.	7	Oct. 27	Mar. 30	Sept. 30	Apr. 13	44.2	12.8	10.1	10.0	11.3
Earlington.	8	Oct. 17	Apr. 7	do.	Apr. 22	48.4	15.3	11.3	10.0	11.8
Edmonton.	9	Oct. 11	Apr. 17	Sept. 14	May 22	48.1	14.2	11.9	9.2	12.8
Middlesboro.	10	Oct. 13	Apr. 19	Sept. 21	May 21	50.3	14.8	13.0	8.4	14.1

KENTUCKY.

Central District: JEFFERSON COUNTY. Station: LOUISVILLE.

H. B. HERSEY, Inspector.

[Established by Signal Service in September, 1871. Latitude, 38° 15' N. Longitude, 85° 45' W. Elevation, 451 feet.]

The Ohio River flows by Louisville on the north and, making a sweeping curve, skirts the western border of the city. It will average about three-fourths of a mile in width at this point. The city is built on the river bluff and the surrounding country is of a gently undulating character.

The office is on the fourth floor of the United States Government building at the corner of Fourth and Chestnut streets.

The thermometers, rain gage, wind instruments, and sunshine recorder are placed on the roof, which affords a good exposure of this type. The standard Weather Bureau shelter is in use.

From 1872 to 1877 the office was located at the corner of Main and Bullitt streets; from 1877 to 1893 it was at the corner of Fourth and Green streets; and was moved to the present location May 1, 1893. The conditions were practically the same at all these different places.

The present elevation of the thermometers above ground is 114 feet; of the rain gage, 107 feet; of the anemometer cups, 136 feet.

Tabulated data are from the following periods of observation: Depth of snowfall, nineteen years; humidity, fifteen years; sunshine, ten years; wind direction, thirty-two years. Remainder of data is from full period of observation, thirty-one years, January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. c.	Grs.	P. c.	Grs.				
December.....	38	45	74	31	-7	52	28	3.7	11	4.6	2.0	2.4	10.4	76	1.80	66	1.95	4	42	SW.	
January.....	35	42	72	27	-20	51	25	3.9	13	1.0	6.3	3.7	5.5	72	1.46	63	1.61	4	43	SW.	
February.....	37	45	78	29	-14	48	27	3.9	11	1.2	9.7	4.5	6.0	72	1.52	63	1.73	5	46	S.	
Winter mean.....	37	44	.....	29	.....	.....	.....	11.5	35	6.8	18.0	10.6	.....	73	1.59	64	1.76	4	44	SW.
March.....	45	54	86	36	3	53	40	4.3	13	3.6	5.8	3.2	12.3	75	2.14	63	2.31	6	49	SW.	
April.....	56	66	91	47	21	65	49	4.0	12	2.5	2.2	0.2	1.7	70	2.96	55	3.16	8	57	SW.	
May.....	67	76	94	57	33	73	62	3.8	12	2.4	7.5	T.	1.0	72	4.28	58	4.63	9	63	S.	
Spring mean.....	56	65	.....	47	.....	.....	.....	12.1	37	8.5	15.5	3.4	.....	72	3.13	59	3.37	8	56	S.
June.....	75	84	100	66	44	79	70	4.3	12	4.1	5.2	0.0	0.0	74	5.72	59	6.06	10	67	S.	
July.....	79	88	107	69	54	84	74	3.8	10	2.8	4.6	0.0	0.0	73	6.41	57	6.43	10	70	SW.	
August.....	77	86	105	67	50	82	73	3.5	8	2.9	5.4	0.0	0.0	76	6.06	59	6.25	10	73	N.	
Summer mean.....	77	86	.....	67	.....	.....	.....	11.6	30	9.8	15.2	0.0	.....	74	6.06	58	6.25	10	70	N.
September.....	70	80	102	60	36	77	65	2.7	8	2.8	3.6	0.0	0.0	77	4.89	58	5.26	9	70	N.	
October.....	59	69	91	49	26	66	53	2.6	8	0.5	1.6	T.	T.	77	3.25	57	3.50	8	71	N.	
November.....	46	54	79	38	4	54	37	4.0	10	1.2	2.7	0.4	2.6	76	2.24	64	2.43	5	50	N.	
Fall mean.....	58	68	.....	49	.....	.....	.....	9.3	26	4.5	7.9	0.4	.....	77	3.46	60	3.73	7	64	N.
Annual mean.....	57	66	107	48	-20	.....	.....	44.5	128	29.6	56.6	14.4	.....	74	3.56	60	3.78	7	58	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-26; Dec. 28, 29.	June 10-13, 23, 28, 30; July 2, 25, 26; Aug. 8-12, 14, 15, 18; Sept. 2.	1900	Jan. 28, 29, 31; Feb. 1, 17, 24, 25; Mar. 17.	July 3; Aug. 5-11, 15, 17-21, 31; Sept. 6, 8-10.
1895	Jan. 1, 12-14, 31; Feb. 2, 4-10, 12, 13, 15.	June 1-3; July 18, 19; Aug. 9, 16-18; Sept. 11, 18-22.	1901	Mar. 6; Dec. 14-21.	June 12, 22-25, 28-30; July 1-3, 11, 15, 16, 19-29; Aug. 7-9.
1896	Jan. 4; Feb. 20, 21....	July 26-30; Aug. 1, 5-11, 15, 22; Sept. 9-11, 14, 18.	1902	Jan. 28; Feb. 2-5, 8, 9; Dec. 26.	June 12, 13; July 4-7, 9, 17, 26-28; Aug. 3.
1897	Jan. 24-30; Feb. 27....	June 15, 30; July 3-5, 7-9, 22, 23; Aug. 1-4, 27, 29; Sept. 1, 7-16.	1903	Jan. 10-13; Feb. 17-19; Dec. 14, 26, 30.	July 3, 4, 8-10, 25-28; Aug. 24; Sept. 7, 9, 14.
1898	Feb. 2, 3; Dec. 14....	July 2, 3, 22-24; Aug. 22, 23; Sept. 1-3.			
1899	Jan. 29, 31; Feb. 1, 7-14; Mar. 6, 7; Dec. 30, 31.	June 3-5, 22, 23; July 14; Aug. 2-4, 11, 26; Sept. 3, 5-8.			

KENTUCKY.

Central District: SHELBY COUNTY. Station: SHELBYVILLE.

H. W. PREISSLER, Observer.

[Established January, 1889. Latitude, 38° 14' N. Longitude, 85° 13' W. Elevation, 695 feet.]

The town is located in a rolling, open country. The office is in the central portion of the town.

The standard equipment, consisting of rain gage, maximum and minimum thermometers, and shelter, is in use. The instruments are placed in the back yard of the observer's residence. The height of the thermometers is about 5 feet, and the top of the rain gage 3 feet above the ground. The location of the instruments has been changed several times since the station was established, but a fairly good exposure has been secured at all times.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	36	45	69	27	-10	49	28	3.6	8	4.5	3.7	4.7
January.....	34	43	69	25	-15	44	23	3.9	10	4.4	7.1	5.7
February.....	34	43	74	25	-23	44	24	3.7	10	0.7	7.6	5.9
Winter mean.....	35	44		26				11.2	28	9.6	18.4	16.3
March.....	45	55	87	35	3	52	39	4.8	12	2.1	10.6	3.6
April.....	56	67	93	43	23	63	50	3.2	10	2.4	3.7	0.4
May.....	65	78	98	53	28	73	60	4.4	11	3.2	3.8	0.2
Spring mean.....	55	67		44				12.4	33	7.7	18.1	4.2
June.....	74	87	101	63	41	77	70	4.8	10	4.5	9.7	0.0
July.....	77	90	107	65	48	83	72	3.9	8	4.5	3.7	0.0
August.....	76	89	103	63	44	81	71	2.8	7	1.6	5.3	0.0
Summer mean.....	76	89		64				11.5	25	10.6	18.7	0.0
September.....	69	83	103	56	28	75	64	2.8	7	0.2	1.7	0.0
October.....	57	71	94	44	18	65	50	2.2	6	1.2	3.3	0.1
November.....	44	54	79	34	10	52	40	4.2	9	3.8	5.1	1.5
Fall mean.....	57	69		45				9.2	22	5.2	10.1	1.6
Annual mean.....	56	67	107	44	-23			44.3	108	33.1	65.3	22.1

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-27; Feb. 5, 16, 24; Dec. 28, 29, 31.	June 10-13, 15, 21-26, 28-30; July 1, 2, 11-13, 18, 19, 24-26, 29-31; Aug. 1, 2, 7-15, 17-19; Sept. 2-8.	1900	Jan. 1, 2, 29, 31; Feb. 1, 17-19, 25; Mar. 17.	May 16; July 2, 4, 7, 14, 15, 17; Aug. 4-12, 15-21, 31; Sept. 1, 6-11.
1895	Jan. 12-14, 30, 31; Feb. 1, 3-15.	May 29-31; June 1-4, 14, 25; July 18-20; Aug. 8-10, 12, 14-18, 28, 29; Sept. 10-13, 18-22.	1901	Feb. 23; Mar. 6; Dec. 14-22.	June 5, 11, 12, 20, 22-30; July 1-5, 10-12, 15-29; Aug. 3, 8-11.
1896	Jan. 3, 4; Feb. 19-21..	May 9-11; June 20; July 26-30; Aug. 1, 4-11, 13-15, 22; Sept. 9-11, 13, 18.	1902	Jan. 28; Feb. 3-5, 8, 9, 13, 18, 19; Mar. 6; Dec. 26, 31.	May 21; June 12-15; July 3-9, 15, 17, 18, 26-28, 31; Aug. 2, 3, 10.
1897	Jan. 25-31; Feb. 27; Dec. 24.	June 13-17, 19, 29, 30; July 3-10, 23; Aug. 1-3, 29; Sept. 1, 7-16.	1903	Jan. 9, 10, 12, 13; Feb. 17-19; Nov. 27; Dec. 11, 15, 16, 26, 30, 31.	July 1-4, 6-11, 25-28; Aug. 22-24; Sept. 7-9, 13, 14.
1898	Jan. 2; Feb. 3; Dec. 9, 13, 14.	June 2, 3, 6-12, 24, July 1-5, 16, 21-25; Aug. 17, 18, 22-24, 30, 31; Sept. 1-3.			
1899	Jan. 1, 2, 7, 31; Feb. 1, 8-14; Mar. 7; Dec. 30, 31.	June 3-7, 21-23, 28; July 2-4, 7, 10-16, 24, 27-29; Aug. 2-4, 17-19, 22-27; Sept. 1-8, 16.			

KENTUCKY.

Central District: FAYETTE COUNTY. Station: LEXINGTON.

R. H. DEAN, Observer.

[Established by Signal Service October 24, 1887. Latitude, 38° 2' N. Longitude, 84° 33' W. Elevation, 978 feet.]

The station is located in room 8, main building of the Agricultural and Mechanical College of Kentucky, commonly known as State College.

Meteorological records have been kept in connection with the college since October 12, 1872.

The campus of State College, a park slightly elevated and set in small deciduous and evergreen trees, is in the southern limits of the city, so that the instruments are practically free from any city disturbances.

All the instruments are exposed on the roof of the main building of the college, ranging from 68 feet above the ground for the rain gage to 102 feet for the anemometer, the thermometer being 75 feet. The thermometers are exposed in the standard roof shelter.

Tabulated data are from the following periods of observation: Depth of snowfall in twenty-four hours, eleven years; humidity, 8 a. m., fifteen years; 8 p. m., ten years; sunshine, five years. Remainder of data is from full period of observation, sixteen years, January 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.	
												Average depth.	Greatest depth in 24 hours.							
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	12	In.	In.	In.	In.	In.	P. ct.	Gr s.	P. ct.	Gr s.	115	39	
December.....	37	45	68	30	-8	50	23	3.3	12	3.5	4.0	3.7	5.0	80	1.76	69	1.97	124	42	
January.....	34	41	71	26	-12	44	23	4.0	13	1.5	5.3	4.6	5.1	82	1.59	71	1.68	124	42	
February.....	34	42	72	27	-20	45	23	3.4	13	0.6	8.1	5.2	5.0	80	1.62	67	1.77	137	45	
Winter mean.....	35	43	.....	28	.....	.....	.....	10.7	38	5.6	17.4	13.5	.....	81	1.66	69	1.81	125	42
March.....	43	51	83	34	1	50	38	4.8	14	2.2	9.9	4.7	5.8	78	2.04	64	2.43	161	43	
April.....	55	64	88	46	22	62	53	3.2	12	4.5	3.6	0.7	3.0	72	2.94	59	3.17	213	54	
May.....	64	73	91	54	32	71	59	3.6	14	2.7	4.7	0.5	6.0	73	4.19	63	4.56	301	68	
Spring mean.....	54	63	.....	45	.....	.....	.....	11.6	40	9.4	18.2	5.9	.....	74	3.06	62	3.39	225	55
June.....	73	83	95	64	42	77	68	4.2	13	3.7	7.4	0.0	0.0	80	6.18	65	5.89	267	67	
July.....	76	85	102	67	51	80	73	4.0	11	2.6	3.1	0.0	0.0	77	6.76	68	6.56	356	79	
August.....	75	84	96	65	51	79	73	3.8	10	3.7	7.3	0.0	0.0	79	6.42	67	6.26	313	74	
Summer mean.....	75	84	.....	65	.....	.....	.....	12.0	34	10.0	17.8	.....	.....	79	6.45	67	6.24	312	73
September.....	69	79	88	59	27	73	63	2.5	8	2.2	1.8	0.0	0.0	79	5.02	62	4.79	279	75	
October.....	57	67	88	47	23	65	51	2.1	9	1.3	2.4	T.	0.2	75	3.17	57	3.06	242	70	
November.....	45	52	78	36	12	53	40	3.6	11	1.7	3.5	1.4	2.2	78	2.30	65	2.35	147	49	
Fall mean.....	57	66	.....	47	.....	.....	.....	8.2	28	5.2	7.7	1.4	.....	77	3.50	61	3.40	223	65
Annual mean.....	55	64	102	46	-20	.....	.....	42.5	140	30.2	61.1	20.8	6.0	78	3.67	65	3.71	221	59

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-26; Feb. 5, 16; Dec. 28-30.	Aug. 9, 10.	1900	Jan. 1, 2, 28, 29, 31; Feb. 1, 17, 18, 24, 25; Mar. 16, 17.	Aug. 10, 11; Sept. 9, 10.
1895	Jan. 1, 12-14; Feb. 4-14; Dec. 6.	Sept. 20.	1901	Feb. 24; Mar. 5, 6; Dec. 14-21.	July 1, 15, 21-29
1896	Jan. 3-5; Feb. 20, 21.	Sept. 18.	1902	Jan. 28; Feb. 2-5, 8-10, 14; Mar. 18; Dec. 26.	July 17.
1897	Jan. 24-31; Feb. 27; Dec. 24.	July 4; Aug. 3, 29; Sept. 14-16.	1903	Jan. 8-13; Feb. 16-19; Dec. 14, 26, 30.	Do
1898	Feb. 1-3; Dec. 10, 14.	July 2, 3.			
1899	Feb. 1, 7-14; Mar. 6, 7; Dec. 29-31.	June 23; July 16; Aug. 2, 3; Sept. 5, 6.			

KENTUCKY.

Eastern Section: MONTGOMERY COUNTY. Station: MOUNT STERLING.

JAMES O'CONNELL, Observer.

[Established in January, 1889. Latitude, 38° 4' N. Longitude, 83° 57' W. Elevation, 930 feet.]

This station is located in a broad valley, surrounded by a rolling and somewhat hilly country. The standard equipment of rain gage, maximum and minimum thermometers, and shelter is in use. A good exposure of all instruments is secured. The height of the thermometers is about 5 feet and the top of the rain gage 3 feet above the ground. Monthly mean temperatures were computed from the daily extremes.

Maximum and minimum temperature data are for the period January 1, 1893, to December 31, 1903. The remaining data are for the period January 1, 1889, to December 31, 1903. There is no record of observations from July, 1891, to February, 1892, inclusive.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	35	42	67	26	- 6	48	27	3.9	9	5.5	2.1	4.2
January.....	34	40	68	24	-13	43	22	4.3	10	3.5	4.8	4.8
February.....	33	42	76	24	-22	44	22	4.2	9	4.2	8.4	6.4
Winter mean.....	34	41		25				12.4	28	13.2	15.3	15.4
March.....	43	54	85	33	2	52	38	5.5	12	1.8	10.1	3.7
April.....	54	65	90	42	21	60	48	3.5	10	3.2	4.6	1.1
May.....	64	76	93	53	30	70	60	3.5	10	4.3	5.3	T.
Spring mean.....	54	65		43				12.5	32	9.3	20.0	4.8
June.....	72	84	97	62	40	75	67	4.8	11	4.6	4.5	0.0
July.....	76	87	100	65	48	80	72	4.5	9	2.4	4.2	0.0
August.....	74	86	97	64	43	79	69	3.6	8	3.0	8.7	0.0
Summer mean.....	74	86		64				12.9	28	10.0	17.4	0.0
September.....	67	80	97	56	32	73	63	2.4	6	1.5		0.0
October.....	55	68	88	44	22	63	48	2.4	5	1.6	3.2	T.
November.....	44	53	79	34	10	52	38	3.8	8	1.7	5.0	0.5
Fall mean.....	55	67		45				8.6	19	4.8		0.5
Annual mean.....	54	65	100	44	-22			46.4	107	37.3	60.9	20.7

a 11 months.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-27; Feb. 5, 16; Dec. 28, 29, 31.	None.	1900	Jan. 1-4, 29, 31; Feb. 1, 17-19, 24-27; Mar. 16.	July 5, 6, 15, 16.
1895	Jan. 1, 12-14, 30, 31; Feb. 1, 3-15, 17; Dec. 6.	Do.	1901	Feb. 24; Dec. 15-21...	June 29, 30; July 1, 11, 15-17, 21-24, 26-29.
1896	Jan. 3-5, 14; Feb. 19-22; Dec. 25.	Aug. 10.	1902	Jan. 28; Feb. 3-5, 8-10, 14; Mar. 18; Dec. 26.	June 13; July 6, 8, 9, 17, 18; Aug. 2.
1897	Jan. 7, 24-31; Feb. 27; Dec. 24.	July 4; Aug. 4, 5; Sept. 15, 16.	1903	Jan. 9, 10, 12, 13; Feb. 17-19; Nov. 27; Dec. 11, 15, 16, 26, 27, 30, 31.	July 9, 10, 27, 28; Aug. 24-26.
1898	Feb. 1-3; Dec. 10, 14, 15.	June 10; July 2, 3.			
1899	Jan. 1, 2, 31; Feb. 1, 8-15; Mar. 6, 7; Dec. 29-31.	June 23; July 13, 15, 16; Sept. 5-7.			

KENTUCKY.

Central Section: DRAYSON COUNTY. Station: LEITCHFIELD.

JOHN E. STONE, Observer.

[Established November, 1895. Latitude, 37° 30' N. Longitude, 86° 22' W. Elevation, 635 feet.]

This station is in an open, rolling country. The equipment, consisting of the rain gage, maximum and minimum thermometers, and standard shelter, is placed in the yard near the observer's residence. A very good exposure is secured. The height of the thermometers is about 5 feet and the top of the rain gage 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, NOVEMBER 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the max- ima.	Absol- ute max- imum.	Mean of the min- ima.	Absol- ute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	Inches.		Inches.	Inches.	Inches.
December.....	34	43	67	26	-11	38	30	4.8	9	3.1	2.9	3.1
January.....	34	42	69	27	-4	38	31	4.6	8	1.3	10.7	1.7
February.....	32	41	69	24	-26	38	26	3.9	9	3.4	1.1	4.9
Winter mean.....	33	42		26				13.3	26	7.8	14.1	9.7
March.....	46	55	79	37	1	51	39	5.8	12	5.5	9.3	2.0
April.....	55	66	90	44	24	63	50	3.6	10	0.8	4.2	0.4
May.....	66	78	93	55	34	70	60	4.4	11	6.4	5.8	0.0
Spring mean.....	56	66		45				13.8	33	12.7	19.3	2.4
June.....	73	84	96	62	42	75	68	3.7	9	2.9	4.3	0.0
July.....	78	89	103	66	51	81	76	3.3	8	6.6	4.4	0.0
August.....	76	87	102	65	47	80	74	3.2	6	1.2	1.6	0.0
Summer mean.....	76	87		64				10.2	23	10.7	10.3	0.0
September.....	69	81	99	57	28	74	66	3.5	6	3.6	6.1	0.0
October.....	58	71	89	46	23	64	54	3.0	5	1.4	5.1	0.0
November.....	46	55	79	36	10	53	41	4.4	8	5.5	3.1	0.5
Fall mean.....	58	69		46				10.9	19	10.5	14.3	0.5
Annual mean.....	56	66	103	45	-26			48.2	101	41.7	58.6	12.6

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Nov. and Dec., none.		1900	Jan. 2, 3, 29, 31; Feb. 1, 17-19, 24, 25; Mar. 17.	Aug. 9-11, 21; Sept. 8-10.
1896	Jan. 3, 4; Feb. 20, 21; Mar. 12.	July 26-30; Aug. 1, 5-12, 15, 22; Sept. 13, 18.	1901	Mar. 6; Dec. 14-21....	June 28, 29; July 11, 15, 16, 20-29.
1897	Jan. 24-31; Feb. 27....	June 12, 14, 17, 29, 30; July 1, 3-10; Aug. 1-4, 28, 29; Sept. 10-16.	1902	Jan. 28; Feb. 3-5, 9, 18; Dec. 26.	June 12; July 9, 17, 18, 26; Aug. 2, 3, 5, 10, 14.
1898	Feb. 2, 3; Dec. 10, 14, 15.	July 3, 19; Aug. 23, 24; Sept. 1, 3.	1903	Jan. 9, 10, 12, 13; Feb. 17-20; Nov. 27; Dec. 16, 26, 30.	None.
1899	Jan. 1, 2, 7, 31; Feb. 1, 7-14; Mar. 6, 7; Dec. 30, 31.	June 22, 23; July 13-16; Sept. 3-8.			

KENTUCKY.

Central Section: PULASKI COUNTY. Station: EUBANK.

LIDA L. WHYLAND, Observer.

[Established June, 1893. Latitude, 37° 20' N. Longitude, 84° 45' W. Elevation, 1,177 feet.]

The surrounding country is rolling and in places somewhat hilly. The station is located about half a mile from the little town of Eubank, in an open stretch of country.

The equipment consists of maximum and minimum thermometers, with standard shelter and a rain gage. A good exposure is secured for the instruments in the yard about 50 feet from the observer's residence. The height of the thermometers is about 5 feet, and the top of the rain gage 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the max- ima.	Absolu- te maxi- mum.	Mean of the min- ima.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	Inches.		Inches.	Inches.	Inches.
December.....	35	45	68	26	-15	39	29	3.7	7	3.8	4.3	3.4
January.....	34	44	72	25	-14	41	28	4.1	7	2.0	6.2	5.0
February.....	33	43	74	23	-22	41	24	4.7	7	1.6	6.3	6.5
Winter mean.....	34	44		25				12.5	21	7.4	16.8	14.9
March.....	47	58	87	36	-2	54	42	5.7	10	3.4	11.5	3.3
April.....	55	67	94	42	20	63	49	4.1	9	5.4	4.2	0.4
May.....	65	78	99	52	29	71	60	3.8	10	3.1	6.0	0.0
Spring mean.....	56	68		43				13.6	29	11.9	21.7	3.7
June.....	72	84	99	59	35	74	66	3.7	9	4.7	1.4	0.0
July.....	75	88	103	63	48	79	74	4.2	9	0.3	4.5	0.0
August.....	74	87	102	62	48	71	71	4.0	7	6.9	1.3	0.0
Summer mean.....	74	86		61				11.9	25	11.9	7.2	0.0
September.....	68	82	101	54	30	73	66	3.3	6	6.2	2.2	0.0
October.....	58	72	89	43	19	62	53	1.9	4	1.3	3.0	0.0
November.....	44	56	77	33	7	51	39	3.6	6	1.3	1.7	0.8
Fall mean.....	57	70		43				8.8	16	8.8	6.9	0.8
Annual mean.....	55	67	103	43	-22			46.8	91	40.0	52.6	19.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-27; Feb. 5, 16, Mar. 27; Nov. 12; Dec. 28, 29, 31.	June 10-13, 22-24, 28, 29; July 1, 2; Aug. 1, 7-15, 18, 19.	1900	Jan. 1-3, 28, 29, 31; Feb. 1, 17-19, 25, 26; Mar. 17.	Sept. 9, 10.
1895	Jan. 1, 12-14, 31; Feb. 5-14, 17; Sept., 1895, to Jan., 1896, missing.	May 31; June 2-4; July 18-20; Aug. 19.	1901	Feb. 23, 24; Dec. 15-22.	June 25; July 11, 15, 16, 19-28.
1896	Jan. missing; Feb. 20, 21.	May 9-11; June 6; July 27-30; Aug. 1, 5-8, 10-15, 22; Sept. 18.	1902	Jan. 5, 28; Feb. 3, 4, 13; Mar. 18.	July 16, 17, 26, 27, 31; Aug. 3.
1897	Jan. 25-31; Dec. 24, ...	July 3.	1903	Jan. 9, 10, 12, 13; Feb. 17-19; Nov. 19, 28; Dec. 1, 15, 17, 26, 27, 30.	None.
1898	Feb. 1, 3; Dec. 10, 11, 14, 15.	June 10.			
1899	Jan. 1, 2, 7, 30, 31; Feb. 1, 8-15; Mar. 6-8; Dec. 20-31.	June 22, 23; July 4, 13-16; Aug. 26; Sept. 3-8.			

KENTUCKY.

Western Section: McCRACKEN COUNTY. Station: PADUCAH.

WILLIAM BORNEMANN, Observer.

[Established in July, 1889. Latitude, 37° 05' N. Longitude, 88° 37' W. Elevation, 341 feet.]

This city is located on the south bank of the Ohio River, just below the mouth of the Tennessee. The surrounding country is undulating. The office is located in the central portion of the city.

The standard equipment of rain gage, maximum and minimum thermometers, and shelter is in use. A good exposure for all instruments is secured on the flat roof of the office building, about 35 feet above the street. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS JULY 1, 1892, TO DECEMBER 31, 1903.

Montn.	Temperature.							Precipitation.				
	Mean.	Mean of the max- ima.	Absolu- te maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	39	47	78	33	— 3	43	34	3.6	7	4.0	2.8	3.3
January.....	37	46	76	29	— 3	43	31	4.0	7	3.2	6.8	2.7
February.....	36	45	77	27	— 12	42	28	3.7	8	6.2	8.4	4.4
Winter mean.....	37	46		30				11.3	22	13.4	18.0	10.4
March.....	49	59	86	40	6	54	44	4.6	10	3.4	4.7	0.8
April.....	60	70	94	49	27	67	56	4.1	9	2.1	4.6	0.0
May.....	70	81	98	59	38	75	66	4.1	10	3.9	4.4	0.0
Spring mean.....	60	70		49				12.8	29	9.4	13.7	0.8
June.....	78	89	102	67	45	81	72	3.5	9	0.8	0.8	0.0
July.....	82	93	112	71	59	86	78	3.6	7	3.1	1.3	0.0
August.....	81	92	105	69	51	86	78	3.0	6	2.1	7.1	0.0
Summer mean.....	80	91		69				10.1	22	6.0	9.2	0.0
September.....	74	86	104	62	41	79	69	3.2	5	0.8	4.6	0.0
October.....	62	74	95	50	29	67	56	2.5	6	1.9	3.8	0.0
November.....	49	58	82	39	14	56	44	4.3	8	2.3	7.6	0.3
Fall mean.....	62	73		50				10.0	19	5.0	16.0	0.3
Annual mean.....	60	70	112	50	— 12			44.2	92	33.8	56.9	11.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-26; Dec. 27-29.	June 10-16, 20-23, 25, 27-30; July 1-3, 13-15, 25, 26, 30, 31; Aug. 7-15, 17-20, 31; Sept. 1, 6.	1899	Jan. 29-31; Feb. 1, 8-14; Mar. 7; Dec. 31.	June 2-5, 7, 8, 14, 20-23, 28; July 2-4, 12-16, 27, 28; Aug. 1-5, 9-12, 17-22, 24-26; Sept. 2-8.
1895	Jan. 12-14, 30, 31; Feb. 2, 4, 5, 7-10, 14.	May 29, 31; June 1-3, 9-11, 14, 22, 25, 29; July 14, 16-20; Aug. 9, 12, 16-18, 24, 27, 28; Sept. 9-13, 15-22.	1900	Jan. 29, 31; Feb. 1, 17, 18, 25.	May 15; June 10, 29; July 2-7, 14-17, 20, 23, 24; Aug. 1, 3-21, 23, 24, 27-30; Sept. 4-11, 15, 26.
1896	Jan. 4.....	May 9; July 3, 4, 13-15, 24, 28-31; Aug. 1, 3-15, 22; Sept. 3, 9-14, 17, 18.	1901	Dec. 14-16, 18-21.....	June 9, 10, 16, 19-30; July 1-4, 6, 10-29; Aug. 2, 3, 7-9, 11, 13; Sept. 6-9.
1897	Jan. 24-30; Feb. 27....	June 11-14, 17-19, 28-30; July 1-10, 22, 23, 25, 26, 30, 31; Aug. 1-4, 26-31; Sept. 1-3, 5-16, 26; Oct. 3.	1902	Jan. 27; Feb. 3-5; Dec. 26.	May 20-24; June 6, 7, 11-15, 27; July 2-10, 14-19, 25-28, 30, 31; Aug. 2-5, 8, 10, 13-15, 20, 21.
1898	Feb. 3; Dec. 14.....	June 3, 6-10, 24; July 1-3, 7, 16, 19, 21, 23-25, 27; Aug. 7, 15-17, 21-24, 27-30; Sept. 1-5, 26-28.	1903	Jan. 12; Feb. 16-19; Dec. 26.	June 30; July 1-4, 6-11, 17, 18, 21, 22, 25-28; Aug. 2-5, 23-25, 27, 28; Sept. 4-9, 14.

KENTUCKY.

Western Section: HOPKINS COUNTY. Station: EARLINGTON.

J. B. ATKINSON, Observer.

[Established in July, 1889. Latitude, 37° 45' N. Longitude, 87° 30' W. Elevation, 370 feet.]

This station is near the center of the little town of Earlington, which is located in a broad, shallow valley. The thermometers are exposed in a standard shelter placed about 5 feet above the ground, in the yard in front of the observer's house. The rain gage is a short distance from the instrument shelter, with its top 3 feet above the sod. A good exposure for both thermometers and rain gage is secured. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS JULY 1, 1889, TO DECEMBER 31, 1903

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	40	47	74	30	-10	53	31	3.8	8	5.6	3.1	3.0
January.....	36	45	74	28	-5	42	31	4.0	8	1.7	4.0	6.0
February.....	37	45	76	28	-28	46	25	4.0	8	1.2	5.9	5.1
Winter mean.....	38	46		29				11.8	24	8.5	13.0	13.1
March.....	47	56	82	38	5	54	42	5.6	11	4.4	2.3	1.4
April.....	58	69	92	48	26	65	52	4.4	10	3.0	1.5	T.
May.....	68	78	95	57	34	73	63	5.3	10	2.5	6.2	0.0
Spring mean.....	58	68		48				15.3	31	9.9	10.0	1.4
June.....	76	87	100	66	40	80	70	3.6	9	2.6	8.8	0.0
July.....	78	89	106	68	44	83	75	4.3	6	2.6	7.3	0.0
August.....	77	88	99	67	48	82	72	3.4	7	4.1	2.7	0.0
Summer mean.....	77	88		67				11.3	22	9.3	18.8	0.0
September.....	70	82	97	60	32	75	67	2.9	5	4.8	2.1	0.0
October.....	60	72	91	55	11	66	54	2.4	4	3.8	3.8	0.0
November.....	48	59	79	38		55	44	4.7	8	1.9	8.6	0.2
Fall mean.....	59	71		49				10.0	17	10.5	14.5	0.2
Annual mean.....	58	68	106	55	-28			48.4	94	38.2	56.3	14.7

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 23-25, 27; Dec. 28, 29, 31.	June 28, 30; July 2.	1900	Jan. 2, 3, 29, 31; Feb. 1, 17-19, 25; Mar. 17.	May 14, 15; June 10, 29; July 5-8, 10, 13, 16, 19, 21, 23, 30; Aug. 1, 3-7, 9-12, 15-21; Sept. 8-10.
1895	Jan. 11, 12, 14, 30, 31; Feb. 2-5, 7-10, 15.	No record for May, June, and July.	1901	Feb. 23; Dec. 14-21....	June 11, 12, 21-30; July 2-4, 10-12, 15, 16, 19-29; Aug. 2.
1896	Jan. 4; Feb. 8 (record for January and February not complete).	July 26-31; Aug. 1, 5-11, 14, 15, 22, 26; Sept. 14.	1902	Jan. 27, 28; Feb. 3-5, 9, 15, 18; Dec. 26, 27.	June 11-15; July 2-5, 7-9, 15, 17, 18, 26, 27, 31; Aug. 2, 3, 5, 8, 13, 14, 20.
1897	Jan. 24-30.....	June 14, 16, 17; July 8; Aug. 1-3.	1903	Jan. 12, 13; Feb. 17-19; Dec. 15, 16, 26, 27.	July 8, 10, 11, 26; Aug. 23, 24; Sept. 5.
1898	Dec. 10, 14.....	June 10, 30; July 1-3, 16, 19, 23, 24, 27; Aug. 7, 21-23, 29-31; Sept. 1, 2.			
1899	Jan. 1, 2, 29-31; Feb. 1, 2, 8-15; Mar. 7; Dec. 30, 31.	June 4, 5, 20-23; July 1, 2, 12-16, 27; Aug. 1-3, 12, 17; Sept. 4-8.			

KENTUCKY.

Central Section: METCALFE COUNTY. Station: EDMONTON.

LEE RAY, Observer.

[Established August, 1890. Latitude, 37° 01' N. Longitude, 85° 40' W. Elevation, 600 feet.]

This station is surrounded by a rolling country. The equipment consists of a standard shelter, with maximum and minimum thermometers and a rain gage. A good exposure for these instruments is secured in the yard near the observer's house. The height of the thermometers is about 5 feet and the top of the rain gage 3 feet above the ground. Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	38	46	67	28	-14	42	30	4.4	9	4.2	3.4	3.8
January.....	35	44	68	27	-10	42	26	4.1	9	3.3	5.8	4.7
February.....	36	45	70	28	-24	45	26	4.3	10	5.5	6.8	7.2
Winter mean.....	36	45		28				12.8	28	13.0	16.0	15.7
March.....	47	57	80	37	1	53	41	6.1	13	2.7	9.5	2.6
April.....	56	67	88	45	20	63	51	4.3	11	3.3	2.6	0.5
May.....	65	77	93	54	32	70	61	3.8	10	4.2	1.0	0.0
Spring mean.....	56	67		45				14.2	34	10.2	13.1	3.1
June.....	73	85	98	63	38	76	68	4.1	10	1.8	6.7	0.0
July.....	76	87	106	65	50	81	70	4.3	■	2.5	2.2	0.0
August.....	75	86	99	64	46	80	71	3.5	■	4.6	6.3	0.0
Summer mean.....	75	86		64				11.9	27	8.9	15.2	0.0
September.....	69	81	99	57	31	75	67	2.9	6	3.9	1.4	0.0
October.....	57	70	91	45	21	■	51	2.2	5	1.2	0.9	0.0
November.....	46	57	80	36	9	53	42	4.1	■	2.1	6.2	0.7
Fall mean.....	57	69		40				9.2	19	7.2	8.5	0.7
Annual mean.....	56	67	106	■	-24			48.1	108	39.3	52.8	19.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24-27; Feb. 16; Dec. 28, 29, 31.	Aug. 14, 15.	1900	Jan. 2, 3, 29, 31; Feb. 1, 17-19, 25; Mar. 16.	July 2; Aug. 6-10, 15-21, 26; Sept. 4-11.
1895	Jan. 1, 12-14, 31; Feb. 1, 3, 5-13, 17; Dec. missing.	None.	1901	Mar. 6; Dec. 15-22.....	June 11, 22-25, 28, 29; July 1-3, 11, 15-18, 19-29, 31; Aug. 2, 3, 9, 10.
1896	Jan. 4; Feb. 20, 21.....	Do.	1902	Feb. 3-5, 9.....	June 12, 14, 26; July 2-9, 15, 17-19, 26; Aug. 3, 5, 14, 15, 19-21.
1897	Jan. 25-31.....	July 3.	1903	Jan. 9, 10, 12, 13; Feb. 17-19; Nov. 27; Dec. 15, 26.	Sept. 7.
1898	Feb. 3; Dec. 14, 15.....	None.			
1899	Jan. 1, 2, 31; Feb. 1, 8-14; Mar. 7, 8; Dec. 30, 31.	Sept. 5-7.			

KENTUCKY.

Eastern Section; BELL COUNTY. Station; MIDDLESBORO.

H. STEELE, Observer.

[Established February, 1891. Latitude, 36° 37' N. Longitude, 83° 43' W. Elevation, 1,128 feet.]

This station is situated in the extreme southeastern portion of the State. It is in a broad, open valley, surrounded by mountains. The usual equipment of standard rain gage, maximum and minimum thermometers, and shelter is in use. The outfit is placed in an open lot, and has an excellent exposure. The height of the thermometers is about 5 feet and the top of the rain gage 3 feet above the ground. Monthly mean temperatures were computed from the daily extremes.

There have been many changes in observers since the station was established and the records have been broken several times.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	37	48	68	27	-5	41	28	3.8	7	2.7	5.3
January.....	34	44	70	28	-19	41	25	4.2	10	1.2	4.0
February.....	37	50	76	29	-20	46	29	6.1	12	7.7	11.1
Winter mean.....	37	48		27				14.1	29	11.6	16.4
March.....	47	58	83	36	3	54	41	5.8	12	2.4	9.8
April.....	56	69	94	43	15	62	50	4.4	11	4.7	6.8
May.....	54	77	96	51	30	71	60	4.6	10	4.9	6.0
Spring mean.....	56	68		43				14.8	33	12.0	22.6
June.....	72	85	100	61	41	74	68	4.3	10	4.4	4.1
July.....	74	86	99	63	47	76	70	5.5	13	8.2	5.3
August.....	74	84	97	64	46	76	71	3.2	9	1.4	2.7
Summer mean.....	73	86		63				13.0	32	14.0	12.8
September.....	67	82	98	55	30	72	65	2.0	6	2.4	0.1
October.....	57	70	90	42	20	63	51	2.0	6	1.6	0.9
November.....	46	58	78	36	7	54	43	4.4	8	1.0	2.4
Fall mean.....	57	70		44				8.4	20	5.0	3.4
Annual mean.....	54	68	100	44	-20			50.3	114	42.6	55.2

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 15, 25-27; Dec. 28, 29.	June 12, 21-23, 28; Aug. 11; July missing.	1900	Jan. and Feb. missing; none in other months.	July 16; Aug. 8, 10.
1895	No record.....	July, Aug., and Sept. missing. None in other months.	1901	No record.....	No record.
1896	Jan. and Feb. missing; Dec. 25.	May 11; July 29, 30; Aug. 12, 22; Sept. 18.	1902	No record Jan. to July, inclusive; none in other months.	No record Jan. to July, inclusive; none in other months.
1897	Jan. 25-31.....	July 4; Sept. 14, 15.	1903	Jan. 8, 12; Feb. 17, 18; Nov. 30; Dec. 2; (Dec. 21-31 missing.)	None.
1898	Feb. 1-4; Dec. 11, 13-15	June 10, 11; July 1-3.			
1899	Jan. 2, 31; Feb. 1, 7-15, Mar. 7, 8; Nov. and Dec. missing.	June 23; July 13-15; Aug. 3; Sept. 4, 6.			

TENNESSEE.

By H. C. BATE,
Section Director.

TENNESSEE.

In considering the climate of a country the factors of latitude, elevation, mountain chains and their direction, proximity to large bodies of water, the direction of the prevailing winds, and the nature of the soil and rocks are to be taken as modifying factors of the principal regulating ones of temperature, rainfall, and sunshine.

Physical features.—The physical features of Tennessee present a great variety. Beginning with the crest of the Unaka Range of the Appalachian system of mountains which divides the State from North Carolina, and which contains the highest points east of the Rocky Mountains, and having an average elevation of 5,000 feet above sea level, the westward slope of many miles of subordinate ranges and foothills reaches the great valley of East Tennessee, which lies in parallel sections between a succession of ridges with the same northeast and southwest trend as the main range. This valley has an average elevation of about 1,000 feet, and is watered by numerous rivers, tributary to the Tennessee, all flowing southwestwardly. It occupies about one-fifth of the State's area. West of the valley is the Cumberland Plateau or table land, lying transversely across the State from south to north, with an average elevation of about 2,000 feet, and occupying an area of about 5,000 square miles. The next natural division is what is known as the "Highlands," extending from the western base of the plateau west to the Tennessee River, and from the southern to the northern border of the State. It is the largest of the natural divisions, having an area of 9,300 square miles, with an average elevation of 800 to 1,100 feet. This division encircles the great central or limestone basin of middle Tennessee, its "Rim" surrounding it as the rim of a soup plate its bowl. The average elevation of the basin is 500 to 700 feet; it has an area of 5,400 square miles. It is well watered by the Cumberland, Elk, Duck, and Caney Fork rivers and their tributaries.

With the narrow valley of the Tennessee, through which the river flows from south to north, lying between it and the western highlands, is the plateau slope of west Tennessee, which includes all the uplands of that section, and has elevations ranging from 600 feet on its eastern side to 350 feet on its western edge, where it abruptly terminates in bluffs overlooking the Mississippi bottoms, the low alluvial lands bordering the great river. This plateau has an area of about 8,600 square miles, more than one-fifth of the entire area of the State. The Mississippi bottom is a narrow strip of country lying parallel to the river, and has an area of 950 square miles, with an average elevation of 250 feet.

Thus we have within the limits of the State elevations ranging from 5,000 feet on the eastern border to 250 feet on the western border with every variety of intermediate elevation.

Temperature.—The mean annual temperature along a line running east and west through the center of the State is, for the Unaka Range, 45°; valley of East Tennessee, 57°; Cumberland Plateau, 55°; Highland rim, 58°; central basin, 59°; plateau of west Tennessee, 60°; Mississippi bottoms, 61°. The difference, it will be seen, amounts to 16°, which is due mainly to elevation. The mean annual temperature of the Unaka Range corresponds with that of the southern parts of Canada, while that of the Mississippi bottoms is about that of middle Georgia. The difference between the northern and southern boundaries of the State, on or near the same level, is about 2°.

The mean annual temperature for the State, deduced from approximate normals, the result of observations extending back twenty to thirty years, is about 58°. For the eastern division it is about 57°; for the middle division, about 58°; and for the western division, about 60°.

The average monthly temperatures are approximately as follows: January, 38.2°; February, 39.1°; March, 48.7°; April, 58°; May, 67.3°; June, 75.1°; July, 77.6°; August, 76.5°; September, 70°; October, 58.7°; November, 48°; December, 40.1°. This gives the mean for the spring months, about 58°; for the summer months, 76.4°; for the fall months, 58.9°, and for the winter months, 39.1°. The lowest monthly average is in January, and the highest is in July. The average absolute range of temperature is about 90°. There are about two hundred and sixty days in the year on which the temperature averages 50° and above.

The average or mean summer heat of the several divisions of the State differs more widely than the winter means, which are very much the same, being about 38°. The mean summer heat of the Unaka Range is about 62°. For the valley of East Tennessee it is about 75°, for the Cumberland Plateau it is about 72°, though on the edges on the east and west, it is 2° to 3° cooler. The mean summer heat of the Highlands is about 75°, and of the central basin 77°. West Tennessee has a summer mean about 1° higher than that of the central basin. The temperature, as shown by observations, rarely reaches as high as 100°. The greatest degrees of cold were observed in January, 1857, 1864, 1884, and 1886, and in February, 1895, and 1899. During the last-named period the temperature ranged from 10° to 15° below zero, being the lowest on record. The coldest weather occurs generally in January, and the warmest in July. Ice sometimes, but very rarely, attains a thickness of 10 inches on the northern borders of the State; its usual maximum thickness is 2 to 3 inches.

One of the most important elements in climate is the period between killing frosts, because this measures the length of the growing season. The records show that the average intervals between the last killing frost of spring and the first killing frost of autumn are, for the eastern division, one hundred and seventy to one hundred and eighty days; for the middle division, one hundred and ninety to two hundred days, and for the western division two hundred days. The most destructive

frosts are in April and October. From the third week in April to the middle of October the probabilities are against the occurrence of killing frosts. In the southern part of the State the period between killing frosts is twelve or fourteen days longer.

Precipitation.—The average annual amount of precipitation (including rain, hail, sleet, and melted snow) for the State is nearly 50 inches, and is distributed as follows: January, 4.84 inches; February, 4.43; March, 5.85; April, 4.48; May, 3.64; June, 4.58; July, 4.45; August, 3.81; September, 3.13; October, 2.53; November, 3.64; December, 3.82 inches. This gives 13.97 inches, or a monthly average of 4.66 inches, for the spring months; 12.84 inches, or a monthly average of 4.28 inches, for the summer months; 9.30 inches, or a monthly average of 3.10 inches, for the fall months, and 13.51 inches, or a monthly average of 4.50 inches, for the winter months. This shows a good distribution of rainfall during the growing and developing season, and the least during the season for gathering the fall crops, and for seeding wheat and other winter grains. The rains are generally fairly well distributed over the State, and damaging droughts are rare, and usually confined to limited areas.

Snow.—The average annual depth of snowfall for the State is about 8 inches. As a rule, snows are light and remain on the ground only a few days at a time, but occasionally falls of unusual depth occur, and at times the ground is covered for from two to four weeks. These, however, are of rare occurrence. One of the earliest of these deep snows of which record is made occurred in 1840, and was 13 inches deep, but it did not extend over the State. In March, 1843, one of the greatest snowfalls on record occurred. It began on the 5th and continued for several days, and reached a depth of 15 to 20 inches. It was quite general throughout the State, even to the southern border, and it did not disappear until about the middle of April. In February, 1886, December, 1886, March, 1892, and January and February, 1895, snow fell to unusual depth. In February, 1886, the fall of snow was greatest in the northwestern portion of the State, being 25 inches at Dickson, Dickson County; 24 inches at Sailors Rest, Montgomery County; 21 inches at Austin, Wilson County; 27 inches at Trenton, Gibson County, and about 18 inches at Nashville. The greatest falls occurred on the 2d, 3d, and 13th. In December, 1886, at Greeneville and Jonesboro, in upper East Tennessee, the aggregate depth for the month was 36 inches, and most of this fell on the 4th and 5th.

State of the weather.—The average number of clear days in the year is 125, monthly average 10.4 days; fair or partly cloudy days 135, monthly average 11.2 days; cloudy days 105, monthly average 8.8 days; days on which 0.01 inch or more precipitation occurs 130, monthly average 10.8 days. This shows a good percentage of sunshine.

Winds.—There are two systems of winds which affect the climate of Tennessee, a lower and an upper. The lower consists of currents flowing from the south and the southwest. These come charged with warmth and moisture from the Gulf of Mexico, and give to the State a genial and fruitful climate. The direction of the mountain ranges is such as to give these winds free access over the State.

The upper system embraces winds from the north and northwest, which flow above the first system, making with this a general circulation. The commingling of these systems, the result of cyclonic or anticyclonic movements, or other meteorological conditions, gives rise to other winds, as westerly or northwesterly, easterly or southeasterly; the last-named two are not as frequent as the others. The winds from the south, west, and southwest are the most frequent and the most desirable.

The fact has been established that the average velocity of the winds in the region which embraces Tennessee is less than in many other portions of the United States. This leaves the State out of the path of frequent storms, giving it a delightful climate, highly favorable to the development of vegetable and animal life.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Anderson (see Knoxville)		Northeastern		Hardeman	Bolivar	Southwestern	789
Bedford (see Tullahoma)		Central		Hardin	Savannah	do	790
Benton (see Johnsonville)		Northwestern		Hawkins	Rogersville	Northeastern	777
Bledsoe (see Erasmus)		Eastern		Haywood (see Bolivar)		Western	
Blount (see Knoxville)		do		Henderson (see Savannah)		do	
Bradley (see Chattanooga)		Southeastern		Henry (see Johnsonville)		Northwestern	
Campbell (see Byrdstown)		Northeastern		Hickman (see Hohenwald)		Central	
Cannon (see Carthage)		Central		Houston (see Johnsonville)		Northern	
Carroll (see Trenton)		Western		Humphreys	Johnsonville	West-Central	790
Carter	Elizabethton	Northeastern	778	Jackson (see Carthage)		Northern	
Ceatham (see Nashville)		North-Central		James (see Chattanooga)		Southeastern	
Chester (see Bolivar)		Southwestern		Jefferson (see Newport)		Eastern	
Claiborne (see Middlesboro, Ky.)		Northeastern		Johnson (see Elizabethton)		Northeastern	
Clay (see Byrdstown)		Northern		Knox	Knoxville	Eastern	784
Coke	Newport	Eastern	785	Lake (see Trenton)		Northwestern	
Coffee	Tullahoma	Central	791	Lauderdale (see Trenton)		Western	
Crockett (see Trenton)		Western		Lawrence (see Hohenwald)		Southern	
Cumberland	Erasmus	Eastern	783	Lewis	Hohenwald	Central	786
Davidson	Nashville	North-Central	781	Lincoln (see Tullahoma)		Southern	
Decatur (see Savannah)		Western		Loudon (see Knoxville)		Eastern	
Dekalb (see Carthage)		Central		McMinn (see Decatur)		Southeastern	
Dickson (see Clarksville)		North-Central		McNairy (see Savannah)		Southwestern	
Dyer (see Trenton)		Western		Macon (see Carthage)		Northern	
Fayette (see Memphis)		Southwestern		Madison (see Trenton)		Western	
Fentress (see Byrdstown)		Southwestern		Marion (see Chattanooga)		Southeastern	
Franklin (see Tullahoma)		Northern		Marshall (see Tullahoma)		Central	
Gibson	Trenton	Western	779	Mauzy (see Hohenwald)		do	
Giles (see Hohenwald)		Southern		Meigs	Decatur	Southeastern	787
Grainger (see Newport)		Northeastern		Monroe (see Decatur)		do	
Greene (see Newport)		do		Montgomery	Clarksville	Northern	775
Grundy (see Tullahoma)		East-Central		Moore (see Tullahoma)		Southern	
Hamblen (see Rogersville)		Northeastern		Morgan (see Erasmus)		Northeastern	
Hamilton	Chattanooga	Southeastern	792	Obion (see Trenton)		Northwestern	
Hancock (see Rogersville)		Northeastern		Overton (see Byrdstown)		Northern	
				Perry (see Hohenwald)		West-Central	

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS—Continued.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Pickett.....	Byrdstown.....	Northern.....	776	Sumner (see Nashville).....	.....	Northern.....	.....
Polk (see Chattanooga).....	.....	Southeastern.....	.....	Tipton (see Memphis).....	.....	Western.....	.....
Putnam (see Carthage).....	.....	Northern.....	.....	Trousdale (see Carthage).....	.....	North-Central.....	.....
Rhea (see Decatur).....	.....	Eastern.....	.....	Unicoi (see Elizabethton).....	.....	Northeastern.....	.....
Roane (see Knoxville).....	.....	do.....	.....	Union (see Knoxville).....	.....	do.....	.....
Robertson (see Nashville).....	.....	Northern.....	.....	Van Buren (see Erasmus).....	.....	East-Central.....	.....
Rutherford (see Nashville).....	.....	Central.....	.....	Warren (see Tullahoma).....	.....	do.....	.....
Scott (see Byrdstown).....	.....	Northeastern.....	.....	Washington (see Elizabethton).....	.....	Northeastern.....	.....
Sequatchie (see Chattanooga).....	.....	Southeastern.....	.....	Wayne (see Savannah).....	.....	Southern.....	.....
Sevier (see Knoxville).....	.....	Eastern.....	.....	Weakley (see Trenton).....	.....	Northwestern.....	.....
Shelby.....	Memphis.....	Southwestern.....	788	White (see Erasmus).....	.....	East-Central.....	.....
Smith.....	Carthage.....	North-Central.....	782	Williamson (see Nashville).....	.....	Central.....	.....
Stewart (see Clarksville).....	.....	Northern.....	.....	Wilson (see Nashville).....	.....	North-Central.....	.....
Sullivan (see Elizabethton).....	.....	Northeastern.....	.....			

STATE SUMMARY—TENNESSEE.

Station.	Num-ber.	Temperature.						Average num-ber days with—	
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absol-ute maxi-mum.	Date.	Absol-ute mini-mum.	Date.	Maxi-mum above 90°.
		° F.	° F.	° F.	° F.		° F.		Mini-mum below 32°.
Clarksville.....	1	59	68	49	104	July, 1901.....	-14	February, 1899.....	34
Byrdstown.....	2	57	68	46	99	July, 1899.....	-19	do.....	19
Rogersville.....	3	56	67	44	97	July, 1887.....	-17	do.....	12
Elizabethton.....	4	56	69	44	104	July, 1898.....	-17	do.....	37
Trenton.....	5	59	70	44	103	September, 1899.....	-29	do.....	48
Johnsonville.....	6	60	71	47	107	July, 1901.....	-23	do.....	64
Nashville.....	7	59	69	50	104	August, 1874.....	-13	do.....	36
Carthage.....	8	59	70	48	103	July, 1901.....	-15	do.....	51
Erasmus.....	9	54	67	41	96	do.....	-30	do.....	14
Knoxville.....	10	57	68	48	100	July, 1887.....	-16	January, 1884.....	22
Newport.....	11	57	69	46	100	July, 1899.....	-18	January, 1893.....	29
Hohenwald.....	12	58	70	45	104	July, 1901.....	-15	February, 1899.....	46
Decatur.....	13	58	70	47	103	do.....	-13	do.....	45
Memphis.....	14	62	70	53	104	do.....	-9	do.....	42
Bolivar.....	15	59	71	48	106	do.....	-13	do.....	46
Savannah.....	16	60	72	50	105	July, 1897.....	-8	do.....	58
Tullahoma.....	17	57	68	46	100	July, 1901.....	-20	do.....	30
Chattanooga.....	18	60	70	51	101	July, 1879.....	-10	do.....	30

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.	Inches.	Inches.	Inches.	Inches.	Inches.
Clarksville.....	1	Oct. 29	Apr. 3	Oct. 10	Apr. 23	47.8	14.0	11.2	9.5	13.1
Byrdstown.....	2	Oct. 20	Apr. 11	Sept. 30	Apr. 24	52.1	14.8	14.2	9.6	13.5
Rogersville.....	3	Oct. 22	Apr. 15	Oct. 1	do.....	44.9	12.6	12.5	7.8	12.0
Elizabethton.....	4	Oct. 21	Apr. 22	Sept. 30	May 4	45.2	12.4	15.9	7.3	9.6
Trenton.....	5	Oct. 20	Mar. 29	do.....	Apr. 4	50.0	13.5	11.2	10.3	15.0
Johnsonville.....	6	Oct. 13	Apr. 5	Sept. 22	Apr. 17	47.6	12.9	11.4	9.7	13.5
Nashville.....	7	Oct. 24	Apr. 2	Oct. 8	May 14	48.5	13.4	11.9	9.8	13.4
Carthage.....	8	Oct. 23	Apr. 4	Oct. 3	Apr. 10	50.0	13.3	13.7	9.6	13.4
Erasmus.....	9	Oct. 11	Apr. 29	Sept. 21	May 21	59.8	17.8	15.6	10.3	16.1
Knoxville.....	10	Oct. 27	Apr. 3	Oct. 1	Apr. 24	49.7	14.1	12.4	9.1	14.1
Newport.....	11	Oct. 30	Apr. 12	Oct. 15	do.....	43.6	13.1	12.9	6.6	11.0
Hohenwald.....	12	Oct. 5	Apr. 15	Sept. 13	Apr. 23	53.3	15.0	13.5	9.5	15.3
Decatur.....	13	Oct. 24	Apr. 12	Oct. 15	Apr. 24	57.9	17.6	14.3	10.7	15.3
Memphis.....	14	Oct. 28	Mar. 24	Oct. 2	Nov. 27	50.8	15.0	11.1	10.1	14.6
Bolivar.....	15	Oct. 26	Apr. 11	Oct. 18	Apr. 10	46.6	14.0	9.0	9.2	13.5
Savannah.....	16	Nov. 1	Mar. 27	Oct. 19	do.....	51.8	14.3	12.8	9.7	15.0
Tullahoma.....	17	Oct. 16	Apr. 18	Sept. 27	May 14	52.0	14.3	12.8	9.2	15.7
Chattanooga.....	18	Oct. 26	Apr. 2	Sept. 30	do.....	51.6	14.7	11.7	9.8	15.4

TENNESSEE.

Middle Section: MONTGOMERY COUNTY. Station: CLARKSVILLE.

J. A. LYON, Observer.

Established by Prof. Wm. M. Stewart in January, 1854; discontinued in November, 1883; reestablished by Signal Service in January, 1890.
Latitude, 36° 31' N. Longitude, 87° 22' W. Elevation, 520 feet.]

The station was in the suburbs of Clarksville during the time Professor Stewart was observer and was called "Glenwood Cottage." It is now in the central part of the city of Clarksville at the residence of the observer and situated on high ground about three-fourths of a mile from the Cumberland River. The country around Clarksville is slightly undulating.

The maximum and minimum thermometers are exposed on a latticed porch on the north side of the house; they are 6 feet from the wall of the house and 7 feet above the ground. The rain gage is 30 feet from the nearest house, and 50 feet from any tree; the top of the gage is 4 feet above the ground.

The temperature means from beginning of station to 1893 were obtained from tridaily observations; from 1894 to 1903 from the daily extremes.

Tabulated data are for the following periods of observation: Maximum and minimum temperatures, number of days with 0.01 precipitation, snowfall, and wind direction, ten years; frost (taken from a minimum temperature of 32° or lower), nine years; remainder of data, thirty-eight years. The data are included within the period January, 1854, to December, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	40	47	73	30	- 5	48	31	4.3	9	1.8	9.8	4.5	N.
January.....	38	46	73	30	- 6	49	24	4.5	10	1.3	2.4	3.0	SW.
February.....	41	45	75	28	-14	48	28	4.3	10	2.4	4.0	3.7	N.
Winter mean.....	40	46		29				13.1	29	5.5	16.2	11.2	N.
March.....	49	59	85	40	4	54	40	5.2	12	2.5	8.0	3.5	S.
April.....	59	68	89	48	28	65	47	4.8	11	5.7	11.3	T.	S.
May.....	68	78	90	58	36	72	61	4.0	10	1.7	3.4	0.0	SW.
Spring mean.....	59	68		49				14.0	33	9.9	22.7	3.5	S.
June.....	75	85	98	66	43	80	69	4.2	9	2.6	2.7	0.0	SW.
July.....	79	88	104	70	57	84	73	3.7	7	7.9	5.1	0.0	SW.
August.....	77	88	99	68	50	81	70	3.3	6	1.3	4.9	0.0	S.
Summer mean.....	77	87		68				11.2	22	11.8	12.7	0.0	SW.
September.....	71	82	97	61	35	76	65	2.9	6	2.2	6.2	0.0	S.
October.....	60	72	91	49	27	65	48	2.4	6	2.7	1.0	0.0	SW.
November.....	48	58	80	39	14	55	39	4.2	8	1.7	1.2	0.3	N.
Fall mean.....	60	71		50				9.5	20	6.6	8.4	0.3	SW.
Annual mean.....	59	68	104	49	-14			47.8	104	33.8	60.0	15.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1896	Jan. 4; Feb. 21.....	July and August missing; Sept. 17, 18.	1900	Jan. 2, 29, 31; Feb. 1,	Aug. 20, 21.
1897	Jan. 25-30.....	June 14, 18; Sept. 1, 2, 10, 11, 15, 16; July and August missing.		17, 18, 25.	
1898	Feb. 3; Dec. 14.....	None.	1901	Dec. 14-16, 18-21.....	June 22, 27-29; July 3-5, 11, 12, 15-17, 20-29; Aug. 10.
1899	Jan. 1, 2, 31; Feb. 1, 7-14; Mar. 7; Dec. 30, 31.	June 23; July and August missing.	1902	Feb. 3, 4, 18.....	June 12, 13, 27; July 1, 2, 4-9, 15-19; Aug. 5, 14, 15, 21.
			1903	Feb. 17-19; Dec. 26...	Aug. 24-26.

TENNESSEE.

Middle Section: PICKETT COUNTY. Station: BYRDSTOWN.

JNO. C. CHILTON, Observer.

[Established by the U. S. Weather Bureau in October, 1892. Latitude, 36° 33' N. Longitude, 85° 7' W. Elevation, 1,026 feet.]

This station is at the home of the observer, 3 miles from Byrdstown, on the north bluff of Wolf River. The surrounding country is rolling; the summit of a mountain 2½ miles south of the station is 300 feet above the elevation of the station.

The maximum and minimum thermometers are exposed on a porch that is open toward the north and east and are placed on the north wall of the house. A large tree shades the porch on the south.

The rain gage is located in the yard, 25 feet from the nearest house, and 50 feet from the nearest tree; the top of the gage is 3 feet above the ground.

The temperature means were obtained from the daily extremes.

Tabulated data are for the period of observation, eleven years, October 1, 1892, to December 31, 1903, except the mean of the maxima and mean of the minima, which are for eight years. Frost data are from minimum temperatures of 32° or lower.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December	38	47	70	29	-9	41	33	4.2	10	5.8	5.5	3.7	S.
January	37	46	72	28	-8	43	30	4.3	11	3.6	6.7	3.9	S.
February	36	45	73	28	-19	43	29	5.0	11	6.0	6.6	7.2	N.
Winter mean	37	46		28				13.5	32	15.4	18.8	14.8	S.
March	49	59	85	39	-1	54	43	6.1	13	2.2	10.4	3.1	S.
April	56	67	88	45	24	59	51	4.9	12	3.5	6.1	0.6	S.
May	67	79	91	55	34	72	62	3.8	12	3.1	6.4	0.0	S.
Spring mean	57	68		46				14.8	37	8.8	22.9	3.7	S.
June	73	85	95	62	36	76	68	4.9	10	2.3	3.4	0.0	S.
July	76	86	99	66	45	79	72	4.8	11	3.7	6.3	0.0	S.
August	75	86	94	65	50	78	73	4.5	9	3.2	2.5	0.0	S.
Summer mean	75	86		64				14.2	30	9.2	12.2	0.0	S.
September	70	82	96	58	32	74	68	3.2	8	2.7	3.4	0.0	S.
October	58	71	89	46	23	66	54	2.2	6	1.0	1.9	T.	S.
November	47	58	79	36	11	53	40	4.2	9	2.2	1.6	0.7	S.
Fall mean	58	70		47				9.6	23	5.9	6.9	0.7	S.
Annual mean	57	68	99	46	-19			52.1	122	33.3	60.8	19.2	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1896	Jan. 4; Feb. 20, 21....		1900	Jan. 2, 3, 26, 29, 31; Feb. 1, 17-19.	Sept. 7, 8.
1897	Jan. 25-31.....	Sept. 1-5, 16.			
1898	Feb. 3; Dec. 10, 14, 15.	June 10.	1901	Mar. 6; Dec. 15-21....	July 11, 16, 22-26, 28, 29.
1899	Jan. 1, 2, 31; Feb. 1, 8-15; Mar. 7; Dec. 30, 31.	June 23; July 13-16; Sept. 4-7.	1902	Feb. 3, 5, 9.....	June 12; July 17, 18.
			1903	Jan. 9, 12, 13; Feb. 17-19; Dec. 26, 27.	None.

TENNESSEE.

Eastern Section: HAWKINS COUNTY. Station: ROGERSVILLE.

FRED BEAL, Observer.

[Established by the Signal Service in May, 1883. Latitude, 36° 25' N. Longitude, 83° 1' W. Elevation, 1,212 feet.]

The station is located on a hill 3 miles south of the town of Rogersville, at the home of the observer. The surrounding country is undulating.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, which is set on posts in the yard. It is 16 feet from the nearest house. The thermometers are 5½ feet above the ground. The rain gage is in an open space, 48 feet from the nearest house and 75 feet from any tree. The top of the gage is 2 feet above the ground.

Tabulated data are for the following periods of observation: Mean maximum and mean minimum temperatures, frost data, and miscellaneous phenomena, eight years; the remainder of data is for the full period of eighteen years, from August 1, 1885, to December 31, 1903. Frost data are from minimum temperatures of 32° or lower.

The temperature means from 1883 to 1895 were obtained from tridaily observations; from 1896 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	38	46	67	28	-5	48	32	3.4	11	2.1	10.7	3.2	NE.
January.....	36	46	72	27	-16	46	25	3.8	12	4.1	3.7	5.0	NE.
February.....	39	46	74	27	-17	48	28	4.8	12	2.0	1.4	4.0	SW.
Winter mean.....	38	46		27				12.0	35	8.2	15.8	12.2	NE.
March.....	47	59	81	38	7	56	43	5.2	14	5.9	4.7	1.5	SW.
April.....	56	67	90	43	24	62	50	3.6	12	1.9	5.0	1.1	SW.
May.....	65	78	91	54	30	70	60	3.8	13	3.1	5.0	0.0	SW.
Spring mean.....	56	68		45				12.6	39	10.9	14.7	2.6	SW.
June.....	72	82	96	61	41	75	68	3.8	12	1.7	3.0	0.0	SW.
July.....	75	85	97	67	52	77	71	4.6	13	8.7	2.7	0.0	SW.
August.....	74	84	96	64	51	79	71	4.1	11	2.2	10.2	0.0	SW.
Summer mean.....	74	84		64				12.5	36	12.6	15.9	0.0	SW.
September.....	68	81	95	57	33	72	66	2.4	7	1.0	4.6	0.0	NE.
October.....	56	71	89	46	24	63	51	2.5	8	1.2	1.5	T.	SW.
November.....	46	58	80	36	10	54	42	2.9	10	2.5	1.3	0.1	SW.
Fall mean.....	57	70		46				7.8	25	4.7	7.4	0.1	SW.
Annual mean.....	56	67	97	46	-17			44.9	136	36.4	53.8	15.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 1, 13; Feb. 8-10, 14; Dec. missing.	June 4.	1900	Jan. 2-4, 29; Feb. 1, 17, 18, 25; Mar. 17.	None.
1896	Jan. 4; Feb. 20-22.....	None.	1901	Mar. 6; Dec. 16, 20-22.	Do.
1897	Jan. 26-30.....	Do.	1902	Feb. 5.....	Aug. 14.
1898	Feb. 2-4; Dec. 14, 15...	Do.	1903	Jan. 9, 13; Feb. 17-19; Dec. 27.	None.
1899	Feb. 1, 8-10, 12-15; Mar. 7; Dec. 29-31.	Sept. 7.			

TENNESSEE.

Eastern Section: CARTER COUNTY. Station: ELIZABETHTON.

L. F. MILLER, Observer.

[Established by the Weather Bureau in April, 1895. Latitude, 36° 20' N. Longitude, 82° 12' W. Elevation, 1,532 feet.]

This station is at the residence of the observer, in the central part of the town of Elizabethton, which is situated in the Watauga Valley and is surrounded by hilly, mountainous country.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter, at the northern end of an outhouse near the residence; the thermometers are 5 feet above the ground. The rain gage is located in an open space in the yard, 50 feet from the nearest house; there are no trees near the gage except some very small ones. The top of the gage is 2½ feet from the ground.

Tabulated data are for the following periods of observation: Mean maximum and mean minimum temperatures, number of days with 0.01 precipitation, snowfall, frost, and miscellaneous phenomena, nine years; mean precipitation and precipitation for the wettest and driest years, fourteen years; remainder of data is for the full period of fifteen years, from January 1, 1868, to May 31, 1871, and April 1, 1895, to December 31, 1903. The frost data are from temperatures of 32° or lower.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
December.....	38	48	80	26	-12	41	32	In. 3.2	10	In. 3.5	In. 9.9	In. 2.4	W.
January.....	37	47	71	26	-13	42	33	2.9	10	2.2	2.0	4.1	W.
February.....	37	46	74	26	-17	45	30	3.5	11	3.7	1.4	4.3	W.
Winter mean.....	37	47	.....	26	.....	.....	.....	9.6	31	9.2	13.3	10.8	W.
March.....	46	60	82	37	12	55	41	4.6	11	4.0	2.8	3.1	W.
April.....	55	66	93	46	21	62	48	3.4	10	1.1	5.6	2.0	W.
May.....	65	81	94	52	32	72	60	4.4	10	1.2	5.6	T.	W.
Spring mean.....	55	69	.....	45	.....	.....	.....	12.4	31	6.3	14.0	5.1	W.
June.....	73	86	102	60	44	76	68	7.2	13	4.4	16.4	0.0	W.
July.....	76	89	104	63	51	77	74	4.6	12	3.9	1.1	0.0	W.
August.....	75	88	98	62	49	77	72	4.1	9	4.4	5.2	0.0	W.
Summer mean.....	75	88	.....	62	.....	.....	.....	15.9	34	12.7	22.7	0.0	W.
September.....	68	83	98	56	30	75	65	2.7	11	3.0	2.6	0.0	W.
October.....	57	72	90	44	22	64	49	2.2	5	2.6	2.4	T.	W.
November.....	46	60	86	36	11	52	39	2.4	9	3.8	0.9	0.6	W.
Fall mean.....	57	72	.....	45	.....	.....	.....	7.3	20	9.4	5.9	0.6	W.
Annual mean.....	56	69	104	44	-17	.....	.....	45.2	116	37.6	55.9	16.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. and Feb. missing; Dec. 6.	May 30, 31; June 1-4; Aug. 14, 15; Sept. 20, 25.	1900	Jan. 2-4, 29-31; Feb. 1, 17-19, 25; Mar. 17.	July 15-18, 20; Aug. 6-11; Sept. 7, 9, 10.
1896	Jan. 4, 5; Feb. 13, 20-22.	June 30; July 27, 23, 31; Aug. 1, 5, 12, 15, 22, 23; Sept. 2, 18.	1901	Feb. 25; Mar. 6, 7; Dec. 15-17, 19-22.	July 5, 21-24.
1897	Jan. 26-31.....	June 15, 16; July 3, 4, 9, 11; Aug. 3, 4, 29; Sept. 7, 9-12, 15, 16.	1902	Jan. 4, 5, 14; Feb. 3, 5, 9, 10, 14; Mar. 6.	July 7, 17.
1898	Feb. 2-4; Dec. 14-16...	June 10, 11, 30; July 1-3, 5, 15.	1903	Jan. 9, 13; Feb. 18, 19; Dec. 1.	July 10.
1899	Feb. 1, 8-15; Mar. 7; Dec. 29-31.	June 4-6, 23, 24; Aug. 19, 20, 23, 25; Sept. 4-8.			

TENNESSEE.

Western Section: GIBSON COUNTY. Station: TRENTON.

J. B. CUMMINGS, Observer.

[Established by the Signal Service in March, 1883. Latitude, 35° 59' N. Longitude, 88° 58' W. Elevation, 345 feet.]

The station is in the eastern part of the town. The country around Trenton is undulating, and a ridge south and south-east of the town is somewhat higher than the point where the station is located.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, set on posts, in the yard; the shelter is 21 feet from the nearest house, and the thermometers are 6 feet above the ground. The rain gage is 18 feet from the nearest house, which is a low building, and there are no trees close by; the top of the gage is 5 feet above the ground.

Tabulated data are for the following periods of observation: Mean maximum and mean minimum temperatures and miscellaneous phenomena, eight years; remainder of data, twenty-one years. The full period of observation, February 1, 1869, to February 28, 1873, and May 1, 1883, to December 31, 1903, has not been used in any case. Frost data are taken from temperatures of 32° or lower.

The monthly mean temperatures from 1883 to 1893 were obtained from tridaily observations; from 1894 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	40	48	69	29	- 4	42	33	4.3	9	4.2	7.1	1.0	SW.
January.....	37	48	72	31	- 1	47	27	5.7	10	4.7	7.4	1.6	NW.
February.....	40	46	74	29	-29	51	29	5.0	9	4.2	10.7	2.2	NW.
Winter mean.....	39	47		30				15.0	28	13.1	25.2	4.8	NW.
March.....	49	63	80	42	8	57	42	5.4	11	7.7	7.8	0.4	NW.
April.....	60	68	90	49	27	66	48	4.3	9	6.1	8.8	0.0	SW.
May.....	68	81	92	59	36	75	63	3.8	8	1.0	8.6	0.0	SW.
Spring mean.....	59	71		50				13.5	28	14.8	25.2	0.4	SW.
June.....	76	85	97	64	42	79	60	4.5	11	2.6	3.8	0.0	SW.
July.....	78	90	99	69	53	81	73	3.5	8	1.6	5.9	0.0	SW.
August.....	78	91	100	68	48	83	72	3.2	6	1.6	2.6	0.0	SW.
Summer mean.....	77	89		67				11.2	25	5.8	12.3	0.0	SW.
September.....	71	85	103	59	30	77	65	2.9	1	T.	5.9	0.0	S.
October.....	59	75	92	48	22	65	53	2.8	6	2.0	2.2	0.0	S.
November.....	47	60	82	39	14	56	44	4.6	7	4.3	2.0	0.5	SW.
Fall mean.....	59	73		49				10.3	17	6.3	10.1	0.5	S.
Annual mean.....	59	70	103	49	- 29			50.0	98	40.0	72.8	5.7	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FEBRUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. missing; Feb. 2-4, 7-10, 13, 14.	June 3; Sept. 15.	1900	Jan. missing; Feb. 17-19, 25; Dec., missing.	Aug. 5, 6, 9-12, 15-24; Sept. 6-9, 11, 12, 16.
1896	None.	July 29, 31; Aug. 1, 4-9, 11-16; Sept. 17, 18.	1901	Jan., Feb., missing; Dec. 15-21.	Aug. 2, 3, 8-10; June and July missing.
1897	Jan. 26, 29.	June 18, 23, 30; July 1-6, 8-10, 30, 31; Aug. 1-4, 26-29; Sept. 2, 11, 16.	1902	Jan. 23; Feb. 16, 18.	Missing.
1898	Jan. 2; Dec. 14.	None.	1903	Feb. 17, 19.	July 6-8, 10, 21, 23, 26, 27; Aug. 24, 28; Sept. 5-11, 13, 14.
1899	Jan. 1, 31; Feb. 1, 8-14; Mar. 7.	June 4, 5, 21-23; July 12-16, 29; Aug. 1, 2, 8-13, 20, 23-25, 28; Sept. 2-8, 10.			

TENNESSEE.

Middle Section: HUMPHREYS COUNTY. Station: JOHNSONVILLE.

SALLIE B. MATHEWS, Observer.

[Established by the Signal Service in February, 1883, as a rainfall station; equipped by Weather Bureau in January, 1896, with thermometers. Latitude, 36° 3' N. Longitude, 88° 0' W. Elevation, 364 feet.]

This station is located in the northwest portion of the town of Johnsonville, near the railroad station and the Tennessee River; it is on ground that slopes to the river.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, which is set on posts, in an open space, the nearest house being 54 feet from the shelter; the thermometers are 6½ feet above the ground. The rain gage is about 5 feet from the instrument shelter; the top of the gage is 3 feet above the ground.

Tabulated data are for the following periods of observation: Temperature data and number of days with 0.01 or more precipitation, eight years, from January 1, 1896, to December 31, 1903; the remainder of the data is for twenty-one years, from February 1, 1883, to December 31, 1903. The frost data are from minimum temperatures of 32° or lower.

Monthly mean temperatures from 1883 to 1895 were obtained from tridaily observations; from 1896 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	F.	° F.	In.		In.	In.	In.	In.	
December.....	39	50	71	28	- 8	42	35	4.1	10	3.2	9.8	2.4	.....	SW.
January.....	39	50	72	28	-11	46	32	4.7	11	3.4	1.9	3.1	.....	SW.
February.....	38	50	80	28	-23	46	30	4.7	11	6.1	3.5	3.0	.....	N.
Winter mean.....	39	50	.....	28	.....	.....	.....	13.5	32	12.7	15.2	8.5	.....	SW.
March.....	51	62	82	40	4	56	44	4.7	11	3.8	3.8	0.4	.....	SW.
April.....	59	71	92	46	25	66	54	4.7	10	4.2	12.3	0.0	.....	SW.
May.....	70	83	94	57	34	74	62	3.5	8	3.3	4.3	0.0	.....	SW.
Spring mean.....	60	72	.....	48	.....	.....	.....	12.9	30	11.3	20.4	0.4	.....	SW.
June.....	75	87	100	63	41	78	69	4.1	12	1.7	3.2	0.0	.....	SW.
July.....	80	92	107	67	48	82	75	3.9	10	3.3	10.1	0.0	.....	SW.
August.....	79	91	102	66	50	81	74	3.4	8	2.2	7.6	0.0	.....	SW.
Summer mean.....	78	90	.....	65	.....	.....	.....	11.4	30	7.2	20.9	0.0	.....	SW.
September.....	72	86	102	58	30	76	69	3.1	6	2.8	4.0	0.0	.....	SW.
October.....	61	74	93	47	21	66	58	2.2	6	0.4	0.2	0.0	.....	S.
November.....	50	61	81	37	11	55	44	4.4	9	1.1	10.2	T.	.....	SW.
Fall mean.....	61	77	.....	47	.....	.....	.....	9.7	21	4.3	14.4	T.	.....	SW.
Annual mean.....	60	71	107	47	-23	.....	.....	47.5	113	35.5	70.9	8.9	17.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1896	Jan. 4; Feb. 21.....	June 18; Sept. 11, 14, 15, 17, 18; July 15, 23, 24, 26-31; Aug. 1, 4, 6-13, 15, 16, 22.	1900	Jan. 2, 3, 29; Feb. 1, 17-19.	Aug. 5, 8-11, 14-22; Sept. 5-10, 27.
1897	Jan. 25-30.....	June 11; July 1-4, 6-10, 24, 31; Aug. 1-4, 26-30; Sept. 2, 11, 15, 16.	1901	Dec. 14-21.....	June 11, 16, 21-30; July 1-5, 10-29; Aug. 2, 3, 7-10.
1898	Feb. 3; Dec. 5, 14, 15..	June 3, 9, 10; July 1-3, 21, 23; Aug. 22-24, 28; Sept. 1-6, 27, 28.	1902	Jan. 13; Feb. 3, 5, 9, 18; Dec. 27.	June 11-15, 27; July 2, 4-9, 14-19, 25, 27, 28; Aug. 3, 14, 15, 18-22.
1899	Jan. 1, 2, 31; Feb. 1, 8-14; Mar. 7; Dec. 30, 31.	June 5, 21, 23; July 3, 4, 11-16, 28, 29; Aug. 2, 3, 9-13, 25; Sept. 2-8.	1903	Jan. 13; Feb. 17, 19; Dec. 26.	July 6-8, 10, 11, 17, 18, 22, 26, 27; Aug. 3-5, 22-28; Sept. 5-9, 11, 13, 14.

TENNESSEE.

Northern District: DAVIDSON COUNTY. Station: NASHVILLE.

H. C. BATE Section Director.

[Established by Signal Service November 1, 1870. Latitude, 36° 10' N. Longitude, 86° 47' W. Elevation, 458 feet.]

Nashville is located on both sides of the Cumberland River, 192 miles from its mouth and 325 miles below the head of navigation.

The city is in the northwest corner of the Central Basin of Middle Tennessee and near the eastern escarpment of the western "Highland Rim." The "Rim," as it is called, rises to the height of 300 to 400 feet above the mean elevation of the basin and forms an amphitheater about the city from the southwest to the northeast, the country to the east, southeast, and south being more or less open, but undulating.

The office has been located in the following-named buildings: 70½ Cherry street, October 20, 1870; State Insurance Building, March 1, 1871; Burns Block, August 1, 1882; Vanderbilt Building, July 1, 1889; Chamber of Commerce Building, September 1, 1894, to date.

The instrument shelter is 9.9 feet above the roof. The rain gage is 115 feet above ground. The wind vane is 132 feet above ground, and the anemometer about 2 feet higher.

Tabulated data are from the following periods of observation: Mean maximum and mean minimum temperatures, twenty-nine years; humidity, fifteen years; sunshine, seven years; number of days with maximum above 90° and with minimum below 32°, twenty-nine years. Remainder of data is from the full period of observation, thirty-three years, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 41	° F. 50	° F. 75	° F. 33	° F. -2	° F. 56	° F. 30	In. 3.8	11	In. 1.6	In. 3.3	In. 1.2	In. 2.4	P.ct. 81	Gr. 2.14	P.ct. 69	Gr. 2.27	132	44	NW.
January.....	38	47	75	30	-10	52	29	4.8	12	2.8	3.7	2.6	6.1	81	1.92	64	1.80	141	45	NW.
February.....	41	50	77	33	-13	51	30	4.8	11	4.6	12.4	3.8	16.3	80	1.97	68	2.16	143	47	NW.
Winter mean.....	40	49	.....	32	.....	.....	.....	13.4	34	9.0	19.4	7.6	.....	81	2.01	67	2.11	139	45	NW.
March.....	49	58	85	39	3	56	43	5.3	13	5.0	8.2	2.3	17.1	76	2.42	62	2.62	183	48	NW.
April.....	59	69	90	50	26	65	54	4.6	11	4.1	5.3	0.1	1.0	74	3.35	56	3.56	242	61	NW.
May.....	68	78	93	58	37	74	64	3.5	10	3.3	4.1	T.	T.	76	4.82	57	4.85	297	66	W.
Spring mean.....	59	68	.....	49	.....	.....	.....	13.4	34	12.4	17.6	2.4	.....	75	3.53	58	3.68	241	59	NW.
June.....	76	85	100	67	42	82	70	4.2	12	3.0	4.0	0.0	0.0	78	6.43	61	6.47	268	61	NW.
July.....	80	90	102	70	56	83	75	4.4	11	1.6	5.7	0.0	0.0	77	6.98	61	7.09	315	71	SW.
August.....	78	87	104	68	51	83	73	3.4	9	2.4	2.2	0.0	0.0	82	6.76	63	6.88	302	72	W.
Summer mean.....	78	87	.....	68	.....	.....	.....	11.9	32	7.0	11.9	0.0	.....	79	6.72	62	6.82	295	68	SW.
September.....	71	81	99	61	38	76	67	3.7	7	1.0	5.4	0.0	0.0	83	5.45	60	5.61	276	74	NW.
October.....	60	71	92	50	27	67	55	2.3	7	1.3	7.2	T.	T.	82	3.58	57	3.74	247	71	NW.
November.....	48	58	81	40	10	55	41	3.8	10	2.1	5.8	0.2	3.0	81	2.57	74	3.12	163	53	NW.
Fall mean.....	60	70	.....	50	.....	.....	.....	9.8	24	4.4	18.4	0.2	.....	82	3.87	64	4.16	229	66	NW.
Annual mean.....	59	69	104	60	-13	.....	.....	48.6	124	32.8	67.3	10.2	17.1	79	4.03	63	4.19	226	60	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24, 25; Dec. 28, 29.	June 13, 28, 29; July 2; Aug. 9-15.	1899	Jan. 31; Feb. 1, 8-14; Mar. 7.	June 4, 5, 20-23; July 4, 12-16; Aug. 10, 11, 25; Sept. 4-8.
1895	Jan. 12, 13; Feb. 7-10.	June 2, 3; July 19; Aug. 18.	1900	Jan. 29; Feb. 1, 17, 18.	Aug. 8-11, 15-22.
1896	Jan. 4; Feb. 21.	July 26-31; Aug. 1, 6-8, 10-13, 15; Sept. 10, 11, 17, 18.	1901	Dec. 14-16, 18-21.	June 22-25, 28, 29; July 5, 11, 12, 14-17, 20-26, 28, 29; Aug. 3, 10.
1897	Jan. 25-30.	June 13, 14, 30; July 1-4, 8-10; Aug. 1-4, 27-29; Sept. 1, 2, 10, 11, 14-16.	1902	Feb. 3.	June 6, 11, 12, 14, 27; July 2-9, 15-19; Aug. 3, 4, 13-15, 19-21.
1898	Feb. 3; Dec. 14.	June 10; July 1, 2.	1903	Feb. 17-19.	Aug. 23-25, 27, 28; Sept. 7, 8.

TENNESSEE,

Middle Section: SMITH COUNTY. Station: CARTHAGE.

E. C. PICKERING, Observer.

[Established by the Weather Bureau in January, 1898. Latitude, 36° 16' N. Longitude, 85° 56' W. Elevation, 500 feet.]

The record for Riddleton, 6 miles west of Carthage, extends from May, 1883, to December, 1897. It is combined with the Carthage record.

Carthage is situated on the Cumberland River. The station is in the eastern part of the town, on high ground. The surrounding country is hilly.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, which is set on posts 15 feet from the dwelling house of the observer. The thermometers are 7 feet above the ground. The rain gage is 13 feet from the dwelling, on a flat rock on elevated ground, which makes the top of the gage but a few feet lower than the roof of the dwelling.

Tabulated data are from the combined records of Carthage, January, 1898, to December, 1903, and Riddleton, 6 miles west of Carthage, May, 1883, to December, 1897. The following periods have been used in obtaining the data: Mean of the maximum and mean of the minimum temperatures and frost data, eight years; remainder of data, twenty-one years. The frost data are from temperatures of 32° or lower.

Monthly mean temperatures from 1883 to 1893 were obtained from tri-daily observations; from 1894 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	40	48	67	29	- 4	52	34	3.8	10	5.2	4.8	1.0	N.
January.....	38	49	72	30	- 9	50	29	4.6	11	5.3	12.8	2.2	N.
February.....	41	47	73	28	-15	51	31	5.0	12	1.2	11.3	3.1	N.
Winter mean.....	40	48		29				13.4	33	11.7	28.9	6.3	N.
March.....	49	62	82	41	3	57	40	5.5	13	3.8	7.8	3.3	SE.
April.....	58	68	84	45	28	67	44	4.4	11	6.2	3.8	0.0	S.
May.....	69	81	92	57	38	73	62	3.4	10	1.0	4.3	0.0	SE.
Spring mean.....	59	70		48				13.3	34	11.0	15.9	3.3	SE.
June.....	76	87	101	64	42	79	71	4.5	12	3.5	9.2	0.0	S.
July.....	79	90	103	68	54	82	74	4.3	11	6.9	6.1	0.0	SE.
August.....	76	90	101	67	52	80	71	4.9	9	3.0	2.4	0.0	SE.
Summer mean.....	77	89		66				13.7	32	13.4	17.7	0.0	SE.
September.....	71	85	99	58	37	76	66	3.2	7	2.5	2.4	0.0	SE.
October.....	59	75	94	48	26	67	53	2.1	7	2.2	2.8	0.0	N.
November.....	48	61	82	39	15	55	44	4.1	9	2.2	1.4	T.	N.
Fall mean.....	59	74		48				9.4	23	6.9	6.6	T.	N.
Annual mean.....	59	70	103	48	-15			49.8	122	43.0	69.1	9.6	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 1, 12-14; Feb. 7-10, 12, 14; Dec. 6.	June 2, 3, 10, 29 (July missing).	1900		Aug. 7-11, 15, 16, 18-22, 26; Sept. 6-9, 11, 12, 16.
1896	Jan. 4, 5; Feb. 21.....	Aug. 7, 8, 12-15.	1901	Dec. 15-21.....	June 22-25, 29; July 1, 3, 5, 11, 12, 14-17, 20-30; Aug. 3, 7.
1897	Jan. 25-30.....	June 14, 30; July 1-3, 9, 10; Aug. 2, 3, 27-29; Sept. 15, 16.	1902	None.....	June 12, 13, 15, 25, 27; July 2, 4-9, 16-20, 27; Aug. 2, 4-7, 10, 13-21.
1898	Feb. 3; Dec. 14.....	June 3, 6, 7, 9, 10; July 1-3, 7; Aug. 24; Sept. 3-5.	1903	Dec. 28.....	July 7, 9, 27, 28; Aug. 23-28; Sept. 5, 7-9, 14.
1899	Jan. 31; Feb. 8-14; Mar. 7.	June 3-5, 21-23; July 4, 11-16, 19, 20; Aug. 2, 10, 11, 23-25; Sept. 3-8.			

TENNESSEE.

Middle Section: CUMBERLAND COUNTY. Station: ERASMUS.

E. D. ASHLEY, Observer.

[Established by the Weather Bureau in January, 1897. Latitude, 35° 50' N. Longitude, 85° 12' W. Elevation, 1,850 feet.]

Erasmus is a small village situated in a valley. Hills surround the station. On the south there is an upward incline about one-fourth of a mile in length, which reaches a height of 100 feet above the station.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, 30 feet northwest from the dwelling house. The thermometers are 7 feet above the ground. The rain gage is 30 feet from the nearest house, which is a low one, and 40 feet from the nearest tree. The top of the gage is 3 feet above the ground.

Tabulated data are for the full period of observation, seven years, January 1, 1897, to December 31, 1903.

The monthly mean temperatures are obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxi-ma.	Absolute maxi-mum.	Mean of the mini-ma.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	35	47	66	23	-15	38	30	5.3	11	2.5	7.4	3.7	SW.
January.....	36	47	71	24	-10	41	35	5.2	12	8.5	6.4	2.1	SE.
February.....	35	47	73	24	-30	42	30	5.6	12	1.6	6.9	4.8	SW.
Winter mean.....	35	47		24				16.1	35	12.6	20.7	10.6	SW.
March.....	48	60	80	36	-3	53	43	7.3	14	5.2	8.6	2.6	SE.
April.....	52	66	86	38	17	54	48	6.3	12	5.8	5.9	T.	SW.
May.....	63	78	89	48	29	66	59	4.2	10	2.1	6.7	0.0	SW.
Spring mean.....	54	68		41				17.8	36	13.1	21.2	2.6	SW.
June.....	69	83	95	56	35	71	64	5.3	11	4.9	5.3	0.0	SW.
July.....	73	86	96	60	44	74	72	5.4	12	4.7	6.9	0.0	SW.
August.....	72	86	96	58	42	74	70	4.9	11	3.8	3.0	0.0	SW.
Summer mean.....	71	85		58				15.6	34	13.4	15.2	0.0	SW.
September.....	65	81	95	50	24	69	63	2.6	6	3.5	1.6	0.0	SE.
October.....	56	72	88	40	17	61	54	3.5	7	5.5	4.0	0.0	SE.
November.....	46	59	76	32	5	50	41	4.2	9	4.1	1.9	0.7	SE.
Fall mean.....	56	71		41				10.3	22	13.1	7.5	0.7	SE.
Annual mean.....	54	68	96	41	-30			59.8	127	52.2	64.6	13.9	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1897	Jan. missing; Feb. 27; Dec. missing.	None.	1901	Feb. 21, 27; Mar. 6; Dec. 15, 18-21.	June 25; July 22, 23, 26; Aug. 3.
1898	Feb. 2-4; Nov. 27; Dec. 6, 8, 11, 14, 15, 26.	June 9; July 2.	1902	Jan. 5, 13, 14; Feb. 3, 5, 9; Dec. 28.	June 12.
1899	Jan. 7, 8, 29-31; Feb. 1, 8-15; Mar. 7, 8; Dec. 5, 26, 29-31.	Sept. 7.	1903	Jan. 9, 12, 13; Feb. 17-19; Nov. 27, 28; Dec. 1, 3, 6, 7, 11, 18, 26-28.	None.
1900	Jan. 2, 4, 28, 30, 31; Feb. 1, 2, 17, 18, 25, 27; Mar. 17.	Aug. 9, 11.			

TENNESSEE.

Tennessee Valley: KNOX COUNTY. Station: KNOXVILLE.

W. M. FULTON, Local Forecaster.

[Established by Signal Service in January, 1871. Latitude, 35° 56' N. Longitude, 83° 58' W. Elevation, 980 feet.]

When observations were begun at this station in 1871, the observatory was located at East Tennessee University, now the University of Tennessee. On August 26, 1877, the observatory was moved to the United States custom-house, near the center of the business portion of the city, where it remained until July 16, 1897. On the latter date the observatory was removed to "Old College Building," University of Tennessee, about three-fourths of a mile southwest of the custom-house, and only about 50 feet from its first location at East Tennessee University.

The station is situated on the summit of a hill, locally known as "College Hill," which is perhaps 100 feet higher than the average elevation of Knoxville and vicinity.

The thermometers and thermograph are exposed in a standard shelter 40 feet north of the station building, on the roof of a neighboring building. The height of the thermometers above the ground is 35 feet. The rain gage is on the roof of the same building, 42 feet east of the shelter and 41 feet from the station building. The top of the gage is 25.1 feet above the ground.

Tabulated data are from the following periods of observation: Dates of first killing frosts, 1871 and 1874-1903; last killing frosts, 1875-1903; snowfall data, eighteen years; humidity, fifteen years; sunshine, six years. Remainder of data is from the full period of observation, thirty-three years, January 20, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute min- imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P.ct.	Gr.s.	P.ct.	Gr.s.			
December.....	39	49	72	32	- 5	52	29	4.1	11	6.3	7.2	2.6	15.1	67	1.65	57	1.81	138	46	NE.
January.....	38	47	74	30	-16	50	30	5.1	13	3.8	6.9	2.9	4.6	67	1.53	58	1.71	128	41	SW.
February.....	41	50	79	33	-10	52	29	4.9	12	7.4	10.2	3.6	8.0	65	1.60	51	1.62	136	45	SW.
Winter mean.....	39	49	.....	32	.....	.....	.....	14.1	36	17.5	24.3	9.1	.....	66	1.59	55	1.71	134	44	SW.
March.....	48	58	83	35	5	55	41	5.6	13	2.4	13.1	1.1	10.8	58	1.84	48	2.10	170	46	SW.
April.....	58	69	90	48	24	64	53	4.7	12	2.8	5.9	0.3	4.4	60	2.02	45	2.76	214	54	SW.
May.....	66	78	94	56	34	72	63	3.8	12	3.8	1.2	0.0	0.0	63	3.74	47	3.75	278	64	SW.
Spring mean.....	57	68	.....	46	.....	.....	.....	14.1	37	9.0	20.2	1.4	.....	60	2.73	47	2.87	221	55	SW.
June.....	73	84	99	64	43	78	70	4.2	13	1.4	4.9	0.0	0.0	66	5.10	56	5.41	272	62	SW.
July.....	76	87	100	68	52	81	72	4.1	12	2.2	7.6	0.0	0.0	67	5.70	55	5.65	292	66	SW.
August.....	75	86	100	66	50	80	70	4.1	12	4.8	5.6	0.0	0.0	69	5.51	57	5.68	280	67	NE.
Summer mean.....	75	86	.....	66	.....	.....	.....	12.4	37	8.4	18.1	0.0	.....	67	5.44	56	5.58	281	65	SW.
September.....	69	81	99	60	35	76	65	2.9	8	0.5	4.1	0.0	0.0	68	4.32	54	4.59	245	66	NE.
October.....	58	70	94	48	25	66	52	2.6	8	1.5	2.8	T.	T.	68	2.87	50	2.97	234	67	NE.
November.....	47	58	80	38	12	54	40	3.6	9	0.6	4.2	T.	0.2	61	1.80	48	1.96	154	50	NE.
Fall mean.....	58	70	.....	49	.....	.....	.....	9.1	25	2.6	11.1	T.	.....	66	3.00	51	3.17	211	61	NE.
Annual mean.....	57	68	100	48	-16	.....	.....	49.7	135	37.5	73.7	10.5	15.1	65	3.19	52	3.33	212	56	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 28, 29.....	Aug. 14.	1900	Jan. 2; Feb. 1, 17, 18, 25.	Aug. 9-12, 19-21; Sept. 10.
1895	Jan. 1, 12, 13; Feb. 7-10, 13.	June 2, 3.	1901	Dec. 15, 16, 18, 20-22...	July 11, 21-29; Aug. 3.
1896	Jan. 4; Feb. 20, 21.....	Sept. 18.	1902	Feb. 5.....	June 12, 13; July 4, 5, 8, 9, 18; Aug. 14.
1897	Jan. 26-30.....	July 3, 4; Sept. 16.	1903	Feb. 17-19.....	July 28.
1898	Feb. 3.....	June 9-11; July 1-3.			
1899	Jan. 31; Feb. 1, 8-14; Mar. 7; Dec. 30, 31.	July 13, 15; Aug. 25; Sept. 4-7.			

TENNESSEE.

Eastern Section: COCKE COUNTY. Station: NEWPORT

C. T. BURNETT, Observer.

[Established by the Signal Service in April, 1891. Latitude, 35° 58' N. Longitude, 83° 12' W. Elevation, 1,290 feet.]

Newport is situated in the French Broad River Valley; at a distance of 1 to 3 miles from the town, mountains rise on every side. The station is located on a hill in the western portion of the town, at the residence of the observer; this point is higher than any other hill in the immediate vicinity.

The maximum and minimum thermometers are exposed on a north porch of the residence. The rain gage is in the yard, 50 feet northwest of the residence, and 30 feet from any other building; the top of the gage is 3 feet above the ground.

Tabulated data are for the following periods of observation: Mean maximum and mean minimum temperatures, and number of days with maximum above 90° and with minimum below 32°, eight years; the remainder of the data is for the full period of thirteen years, from April 1, 1891, to December 31, 1903. Frost data are taken from temperatures of 32° or lower.

Monthly mean temperatures from April, 1891, to 1895 were obtained from twice daily readings; from 1896 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	38	47	72	29	- 5	42	34	3.1	8	1.5	9.8	1.9	W.
January.....	38	48	75	32	-18	43	24	3.6	9	5.3	4.4	4.3	W.
February.....	40	48	79	28	-16	45	26	4.3	9	2.1	1.0	4.1	W.
Winter mean.....	39	48		30				11.0	26	8.9	15.2	10.3	W.
March.....	48	61	84	40	6	56	43	5.4	11	2.6	6.3	3.0	W.
April.....	57	67	93	44	27	62	51	3.6	8	5.8	5.0	1.0	W.
May.....	66	79	93	55	35	71	61	4.1	10	3.1	5.6	0.0	W.
Spring mean.....	57	69		46				13.1	29	11.5	16.9	4.0	W.
June.....	74	85	100	63	44	77	71	4.2	9	3.2	2.4	0.0	W.
July.....	77	89	100	67	53	79	75	4.3	10	3.2	2.8	0.0	W.
August.....	76	87	95	66	55	79	73	4.4	9	2.5	10.8	0.0	W.
Summer mean.....	76	87		65				12.9	28	8.9	16.0	0.0	W.
September.....	69	82	98	58	34	74	65	2.2	5	1.2	2.4	0.0	W.
October.....	58	71	88	41	24	65	49	1.8	5	0.6	1.4	T.	W.
November.....	46	59	81	37	12	53	41	2.6	8	6.0	1.2	0.8	W.
Fall mean.....	58	71		45				6.6	18	7.8	5.0	0.8	W.
Annual mean.....	57	69	100	47	-18			43.6	101	37.1	53.1	15.1	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 1, 13; Feb. 8-10; Dec. 6.	June 3, 4; July 19.	1900	Jan. 2-4, 29; Feb. 1, 17, 18, 24.	None.
1896	Feb. 21.....	Aug. 22; Sept. 18.	1901	Dec. 16, 20-22.....	July 16, 22-24, 26, 27, 29.
1897	Jan. 26, 28-31.....	Aug. 3; Sept. 15, 16.	1902	Feb. 5.....	Aug. 14.
1898	Feb. 2, 3, 4; Dec. 14, 15.	June 9-11.	1903	Feb. 18, 19.....	None.
1899	Feb. 1, 8-10, 12-15; Mar. 7; Dec. 30, 31.	June 2, 3; July 13-17, 25, 26; Sept. 5-7.			

TENNESSEE.

Middle Section: LEWIS COUNTY. Station: HOHENWALD.

WM. SCHAPPACHER, Observer.

[Established by the Signal Service in May, 1883. Latitude, 35° 30' N. Longitude, 87° 30' W. Elevation, 983 feet.]

This station is situated at the home of the observer, 2 miles west of Hohenwald; it is in the plateau region, on ground somewhat higher than that immediately surrounding.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, set on posts in the yard 50 feet from any house; the thermometers are 6 feet above the ground. The rain gage is 10 feet from the instrument shelter, 60 feet from the nearest houses, and 25 feet from the nearest trees, which are small; the top of the gage is 4 feet above the ground.

Tabulated data are for the following periods of observation: Mean maximum and mean minimum temperatures, seven years; remainder of data is for the full period of twenty years, from May 1, 1883, to December 31, 1903. The frost data are from temperatures of 32° or lower. The monthly mean temperatures from 1885 to 1895 were obtained from tridaily readings; from 1896 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Months.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	40	77	76	27	-6	55	34	4.9	9	5.1	2.6	2.7	S.
January.....	38	49	76	27	-12	49	29	5.2	10	6.0	2.6	2.5	N.
February.....	39	49	78	28	-15	50	26	5.2	10	1.1	4.6	2.6	S.
Winter mean.....	39	49		27				15.3	29	12.2	9.8	7.8	S.
March.....	49	62	84	40	1	55	45	6.6	12	6.9	5.4	3.0	N.
April.....	59	69	92	44	22	64	54	4.6	10	2.3	7.9	0.0	S.
May.....	67	81	94	54	30	71	62	3.8	10	2.6	3.0	0.0	S.
Spring mean.....	58	71		46				15.0	32	11.8	16.3	3.0	S.
June.....	75	88	102	60	35	79	66	5.1	11	1.5	17.9	0.0	S.
July.....	77	91	104	64	47	81	74	4.5	10	7.3	5.8	0.0	S.
August.....	76	90	104	63	43	79	71	3.9	11	2.8	2.3	0.0	S.
Summer mean.....	76	90		62				13.5	29	11.6	26.0	0.0	S.
September.....	69	84	100	55	28	74	64	3.2	6	0.8	2.5	0.0	S.
October.....	59	72	96	44	16	64	52	2.1	5	1.8	5.2	0.0	N.
November.....	48	60	80	35	9	54	43	4.2	8	2.5	8.0	0.8	S.
Fall mean.....	59	72		45				9.5	19	5.1	15.7	0.8	S.
Annual mean.....	58	70	104	45	-15			53.3	109	40.7	67.8	11.6	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 1; Feb. 7-9, 14, 17..	(June, July, August blank); Sept. 17, 18. June 12-15, 18, 22-24, 29, 30; July 1-6, 8, 10; Aug. 1-4, 6, 28, 29.	1901	Dec. 14-21.....	June 5, 10, 12, 16, 20-30; July 1-5, 7, 10-12, 14-17, 19-30.
1896	Jan. 4; Feb. 21.....		1902	Feb. 3, 5, 16, 18; Dec. 6, 26, 27.	June 11-15, 26, 27; July 2, 4, 8, 9, 15-19, 25, 26, 28; Aug. 4, 14, 15, 18-22.
1897	Jan. 25-30; Feb. 27...		1903	Jan. 12, 13; Feb. 17-19; Nov. 28; Dec. 1, 7, 16, 26, 27.	July 11, 27; Aug. 4, 18, 24-28; Sept. 5-8, 13.
1898	Feb. 3; Dec. 14.....	June 3, 10, 24, 30; July 1, 2, 7; Aug. 22-24.			
1899	Jan. 1, 30, 31; Feb. 1, 8-14; Mar. 7; Dec. 5, 30, 31.	June 3-5, 21-23; July 4, 14-16; Aug. 25, 28; Sept. 5-8.			
1900	Jan. 2, 3, 29, 31; Feb. 1, 17, 18.	Aug. 9, 11, 22.			

TENNESSEE.

Eastern Section: MEIGS COUNTY. Station: DECATUR.

J. W. LILLARD, Observer.

[Established by the Weather Bureau in December, 1895. Latitude, 35° 30' N. Longitude, 84° 48' W. Elevation, 850 feet.]

The station is located in the northeastern edge of the town, on a hill. The country in this section is rolling; about 1½ miles to the southeast, and east of the station there are hills that rise 150 to 200 feet above the station.

The maximum and minimum thermometers are exposed in a standard shelter, which is 100 feet from the nearest house; the thermometers are 5½ feet above the ground. The rain gage is in an open space, 100 feet from the nearest house and 30 feet from the nearest tree; the top of the gage is 3 feet above the ground.

Tabulated data are for the full period of observation, 8 years, December 1, 1895, to December 31, 1903. The frost data are taken from temperatures of 32° or lower.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	39	50	69	29	1	42	34	4.9	11	6.4	2.7	1.8	SW.
January.....	39	49	71	28	- 9	44	36	4.4	11	3.8	3.8	2.0	SW.
February.....	39	50	75	29	-13	46	34	6.0	11	4.6	15.1	3.9	NW.
Winter mean.....	39	50	.....	29	.....	.....	.....	15.3	33	14.8	21.6	7.7	SW.
March.....	51	62	85	40	2	56	46	7.9	14	7.1	12.1	1.3	SW.
April.....	57	70	89	44	24	63	53	5.7	11	2.3	6.6	T.	SW.
May.....	69	82	94	55	35	73	64	4.0	10	3.4	4.4	0.0	SW.
Spring mean.....	59	71	.....	46	.....	.....	.....	17.6	35	12.8	23.1	1.3	SW.
June.....	75	87	99	63	40	77	70	4.4	12	2.5	6.6	0.0	SW.
July.....	78	90	103	66	51	81	77	4.8	12	3.9	5.5	0.0	SW.
August.....	77	88	101	65	53	79	75	5.1	12	1.3	5.4	0.0	SW.
Summer mean.....	77	88	.....	65	.....	.....	.....	14.3	36	7.7	17.5	0.0	SW.
September.....	70	83	98	58	34	73	68	3.5	6	5.7	0.2	0.0	SW.
October.....	60	74	92	46	23	66	57	3.3	6	3.0	4.1	T.	SW.
November.....	49	61	78	37	12	54	43	3.9	9	5.2	4.1	T.	SW.
Fall mean.....	60	73	.....	47	.....	.....	.....	10.7	21	13.9	8.4	T.	SW.
Annual mean.....	58	70	103	47	-13	.....	.....	57.9	125	49.2	70.6	9.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	None in December.....		1900	Jan. 2, 3, 29; Feb. 1, 17, 18.	July 6, 16; Aug. missing.
1896	Jan. 4, 5; Feb. 21.....	July 27-30; Aug. 1, 6, 8-13, 22, 23; Sept. 18, 19.	1901	Dec. 15-18, 20-22.....	June 22-25; 27-30; July 1-5, 11-16, 19-30; Aug. 3, 9.
1897	Jan. 26-31.....	June 12-14, 29, 30; July 1, 3, 4; Aug. 1-3; Sept. 15, 16.	1902	Feb. 5.....	June 6, 12-14, 25, 27; July 2-10, 16-19, 26; Aug. 4, 10, 13-15, 19-21.
1898	Feb. 3; Dec. 14.....	June 9-11; July 1-3.	1903	Jan. 13; Feb. 17-19; Dec. 27.	Aug. 25, 27, 28; Sept. 7.
1899	Feb. 1, 8-10, 12-15; Mar. 7; Dec. 30, 31....	June 4, 8, 22; July 13-16; Aug. 10, 11, 23-25; Sept. 5-7.			

TENNESSEE.

Southwestern District: SHELBY COUNTY. Station: MEMPHIS.

S. C. EMERY, Local Forecaster.

[Established by the Signal Service February 28, 1871. Latitude, 35° 9' N. Longitude, 90° 3' W. Elevation, 271 feet.]

Memphis is located in the extreme southwest corner of Tennessee, about 12 miles north of the Mississippi State line. That portion of the city fronting the Mississippi River is built upon what is commonly known as the Fourth Chickasaw Bluff.

The river bank or bluff along the city front ranges in height from about 20 to 60 feet above the highest water, and for the most part is quite abrupt. In front of the business district, however, the bluff has been sloped off to form a levee for wharfage purposes.

The station was first located in the Jackson Block, corner of Main and Gayoso streets, but on October 9, 1871, it was moved to the Irwin Block, No. 254 Second street. In 1879 to 260 Front street. In 1889 to the Cotton Exchange Building, and on July 1, 1895, it was moved to its present location on the eleventh floor of the Porter Building, corner of Main and Court streets.

The thermometers are exposed in a regulation shelter on the roof of the building. The bottom of the shelter is 6.7 feet above the flat cement covered roof. The rain gage is on a lower section of the same roof, 30 feet from the shelter and 133.5 feet above the ground.

The mean temperature has been calculated from the daily maximum and minimum readings, except for the years 1871 to 1874, when the monthly values were obtained from the three daily eye readings. The tabulated data cover a period of thirty-three years, February 28, 1871, to December 31, 1903, but humidity is for fifteen years; sunshine three years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of pos- sible.	
												Average depth.	Greatest depth in 24 hours.							
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr s.	P. ct.	Gr s.				
December.....	43	52	76	37	2	60	32	4.2	10	4.4	4.4	1.3	6.6	79	2.25	68	2.49	158	52	NW.
January.....	41	48	79	33	- 8	55	30	5.4	11	3.4	4.3	2.0	9.6	79	2.02	68	2.24	157	50	NW.
February.....	44	52	79	36	- 9	53	32	5.0	11	2.0	1.5	2.0	9.8	78	2.14	67	2.37	141	46	NW.
Winter mean.....	41	51	76	35	- 8	53	32	4.6	32	9.8	10.2	5.3	.....	79	2.14	68	2.37	152	49	NW.
March.....	52	61	87	41	15	60	47	5.7	12	3.5	4.2	1.3	18.0	76	2.69	65	3.15	169	41	NW.
April.....	62	72	90	54	27	69	56	5.0	10	1.6	13.9	0.0	0.0	74	3.84	58	4.06	214	62	SE.
May.....	71	79	91	61	40	76	67	4.3	10	2.0	1.8	0.0	0.0	77	5.40	62	5.62	249	58	SE.
Spring mean.....	62	71	87	53	35	71	56	5.0	32	7.1	19.9	1.3	.....	76	3.99	62	4.28	211	55	SE.
June.....	78	87	100	69	50	81	72	4.5	10	1.8	18.2	0.0	0.0	80	7.03	65	7.11	296	68	SW.
July.....	81	90	104	72	58	84	77	3.2	10	0.4	6.2	0.0	0.0	82	7.92	68	8.15	336	76	SW.
August.....	80	88	102	71	53	84	75	3.4	8	6.8	6.0	0.0	0.0	84	7.38	69	7.78	297	71	SW.
Summer mean.....	80	88	102	71	53	84	75	3.4	28	9.0	30.4	0.0	.....	82	7.44	67	7.68	310	72	SW.
September.....	73	82	99	64	39	78	68	3.0	7	5.6	3.1	0.0	0.0	81	5.61	65	6.28	262	71	N.
October.....	63	72	92	54	20	70	56	2.6	6	1.6	3.8	0.0	0.0	80	3.88	61	4.28	265	76	NW.
November.....	51	60	82	43	16	58	41	4.5	10	1.5	6.0	T.	T.	80	2.83	63	2.95	183	59	SE.
Fall mean.....	62	71	87	54	25	68	47	3.2	23	8.7	12.9	T.	.....	80	4.11	63	4.50	237	69	NW.
Annual mean.....	62	70	104	53	- 9	71	50.8	4.6	115	34.6	73.4	6.6	18.0	79	4.42	65	7.71	227	61	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 24, 25; Dec. 28....	June 14, 28-30; July 1, 31; Aug. 9, 10, 13-15.	1898	None.....	July 21; Aug. 22.
1895	Jan. 12; Feb. 7, 8....	June 2, 3; July 16, 17; Aug. 10.	1899	Jan. 31; Feb. 1, 9-13....	Aug. 1, 10-13.
1896	None.....	July 2, 3, 15, 18, 24, 26-31; Aug. 1, 3-9, 11-16, 21, 22.	1900	Feb. 17.....	Aug. 21.
1897	Jan. 26.....	June 23, 27; July 1-3, 5, 6, 8-10, 26, 31; Aug. 1-4, 26-30.	1901	Dec. 15, 16, 18, 20, 21....	June 16, 20, 21, 24-29; July 3, 11, 12, 14, 15, 17-23, 28; Aug. 3, 9.
			1902	None.....	June 11-14; July 8, 17; Aug. 18.
			1903	Feb. 17.....	None.

TENNESSEE.

Western Section: HARDEMAN COUNTY. Station: BOLIVAR.

MARY A. SMITH, Observer.

[Established by the Signal Service in March, 1883. Latitude, 35° 15' N. Longitude, 89° W. Elevation, 450 feet.]

This station is in the northern part of the town of Bolivar, at the residence of the observer. The general contour of the country is level or slightly rolling.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, which is attached to a small out-house in the yard. The thermometers are 4½ feet above the ground. The rain gage is 38 feet from the nearest house, and 10 feet from the nearest tree, which is not large enough to materially affect the catch of rainfall in the gage; the top of the gage is 2 feet above the ground.

Monthly mean temperatures from March, 1883 to 1893, were obtained from tridaily readings; from 1894 to 1903 from the daily extremes.

Tabulated data are for the following periods of observation: Mean maximum and mean minimum temperatures, number of days with maximum above 90° and with minimum below 32°, and frost data, nine years; the remainder of the data are for the full period of observation, twenty years—from March 1, 1883, to December 31, 1903. The record is somewhat broken from 1887 to 1893. Frost data are from minimum temperatures of 32° or lower.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	40	50	78	30	- 2	60	35	4.1	6	4.8	2.7	2.2	N.
January.....	38	49	75	30	- 7	51	30	5.3	11	3.8	2.5	2.9	N.
February.....	40	50	77	29	-13	47	31	4.1	8	2.0	5.9	2.4	N.
Winter mean.....	39	50		30				13.5	22	10.6	11.1	7.5	N.
March.....	50	62	84	40	17	55	45	5.2	9	3.4	2.4	0.5	S.
April.....	60	72	90	50	27	67	55	2.3	8	5.6	5.6	0.0	S.
May.....	68	82	93	57	33	74	62	3.8	7	1.6	3.0	0.0	S.
Spring mean.....	59	72		48				14.0	24	7.8	11.0	0.5	S.
June.....	76	87	101	65	43	81	71	3.8	7	0.4	13.0	0.0	S.
July.....	79	91	103	70	52	84	76	3.6	8	1.2	5.7	0.0	S.
August.....	78	91	103	67	50	82	74	2.5	6	8.4	0.8	0.0	S.
Summer mean.....	78	90		67				9.9	21	10.0	19.5	0.0	S.
September.....	71	85	100	59	34	77	67	3.0	5	4.5	3.2	0.0	S.
October.....	61	74	92	47	25	65	54	2.3	11	0.8	6.0	0.0	N.
November.....	49	60	80	39	14	55	45	3.9	6	1.7	7.4	T.	N.
Fall mean.....	60	73		48				9.2	15	7.0	16.6	T.	N.
Annual mean.....	59	71	106	48	-13			46.6	82	35.4	58.2	8.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 12, 13; Feb. 7, 8, 9, 14.	June 25; Aug. 13-15, 18, 19; Sept. 14-17, 19-21, 25-27.	1900	Jan. 2; Feb. 1, 17.....	Aug. 8, 10, 11, 14-16, 19-22; Sept. 12.
1896	None.....	July 3, 23, 24, 26-31; Aug. 1, 3-17, 22; Sept. 2, 14, 15, 17, 18.	1901	Dec. 15-21.....	June 16, 20-30; July 1-5, 7, 10-30; Aug. 2, 3, 8-10.
1897	Jan. 25-30.....	June 11-19, 23, 24, 27; July 2-10, 22, 24-26, 30, 31; Aug. 1-6; Sept. 3, 7, 9-12, 15, 16.	1902	None.....	June 11-15, 26, 27; July 2, 5, 7-9, 15-19, 25, 26; Aug. 14, 15, 18-21.
1898	Jan. 2; Dec. 14.....	July 2; Aug. 23; Sept. 3.	1903	Feb. 17-20.....	July 1, 3, 7, 8, 17, 18, 27, 28; Sept. 7, 8, 16.
1899	Jan. 1, 2, 30, 31; Feb. 1, 8-14 (December).	June 2, 4, 5, 22, 23; July 12-16; Aug. 7, 9, 11-13, 24-26; Sept. 2-8.			

TENNESSEE.

Western Section: HARDIN COUNTY. Station: SAVANNAH

C. L. HEFNER, Observer.

[Established by the Signal Service in March, 1883. Latitude, 35° 14' N. Longitude, 88° 13' W. Elevation, 450 feet.]

The town of Savannah is situated on the Tennessee River. The general contour of the country in the vicinity of the station is hilly.

The maximum and minimum thermometers are exposed on the north end of an outhouse, and are protected by 4 feet of extended roof. They are 5 feet from the ground. The rain gage is located in an open space; it is attached to a fence, the top of the gage being about 4 inches above the fence and 5 feet above the ground.

Tabulated data are for the following periods of observation: Mean maximum and minimum temperatures, seven years; frost data, nine years; remainder of data are for the full period of twenty years from March 1, 1883, to December 31, 1903. Frost data are from temperatures of 32° or lower.

The monthly mean temperatures from 1883 to 1895 were obtained from tridaily readings; from 1896 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absol- ute maxi- mum.	Mean of the mini- ma.	Absol- ute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	42	50	75	30	0	57	36	4.9	8	2.9	5.3	2.2	N.
January.....	40	50	75	32	- 6	53	31	4.8	9	8.1	8.2	3.0	S.
February.....	42	50	77	32	- 8	48	33	5.3	9	1.4	10.3	2.4	NW.
Winter mean.....	41	50		31				15.0	26	12.4	23.8	7.6	N.
March.....	51	63	84	43	6	57	42	5.7	10	4.3	9.3	2.8	S.
April.....	61	70	90	50	27	70	56	4.4	8	2.6	4.1	0.0	S.
May.....	69	82	94	60	35	77	65	4.2	8	3.5	4.1	0.0	S.
Spring mean.....	60	72		51				14.3	27	10.4	17.5	2.8	S.
June.....	76	88	103	66	45	80	68	4.9	9	2.5	4.5	0.0	S.
July.....	80	92	105	70	53	83	75	4.2	8	5.5	0.4	0.0	S.
August.....	78	90	104	68	52	83	72	3.7	7	1.6	7.7	0.0	SW.
Summer mean.....	78	90		68				12.8	24	9.6	12.6	0.0	S.
September.....	72	86	101	61	33	79	65	3.6	6	3.3	8.5	0.0	W.
October.....	60	76	94	50	25	66	56	2.2	5	2.6	2.3	0.0	NW.
November.....	49	62	82	40	10	57	44	3.9	7	4.0	1.8	T.	N.
Fall mean.....	60	74		50				9.7	18	9.9	12.6	T.	N.
Annual mean.....	60	72	105	50	- 8			51.8	95	42.3	66.5	10.4	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Missing.....	June 2, 3; Aug. 18; Sept. 15, 21.	1900	Jan. 2; Feb. 1, 17, 18...	July 16; Aug. 8-22; Sept. 10, 23.
1896	January and Decem- ber missing.	July 24, 27-31; Aug. 1, 3, 4, 6-16; Sep- tember missing.	1901	Dec. 15, 16, 18, 20, 21...	June 21-29; July 1, 3, 11, 12, 14-30; Aug. 3, 8-11.
1897	Jan. 25-29.....	June 12, 13, 18-20, 23-27, 29, 30; July 1-10, 16, 22-26, 30, 31; Aug. 1-5, 26-30; Sept. 1-3, 7-16, 24, 27.	1902	Dec. 26.....	June 11, 12, 13, 15, 26, 27; July 2, 4-9, 14-19, 25, 26; Aug. 5, 9, 14, 15, 19-21.
1898	Dec. 14.....	June 3, 6, 8-10, 24, 30; July 1-3; Aug. 18, 22-24; Sept. 2, 3, 5.	1903	Feb. 17, 19.....	June 21; July 1-4, 7-11, 22, 25-28; Aug. 3, 5, 23, 24, 26-29.
1899	Jan. 2, 30, 31; Feb. 1, 7-14; Mar. 7.	June 2-5, 7, 8, 14, 20-23, 28; July 1-4, 7, 11-16, 29; Aug. 2, 9-13, 23-26; Sept. 2, 7.			

TENNESSEE.

Middle Section: COFFEE COUNTY. Station: TULLAHOMA.

R. T. MOORE, Observer.

[Established by the Signal Service April, 1889. (Records of "Manchester" station, 12 miles north of Tullahoma, period March, 1883, to March, 1889, combined with Tullahoma record.) Latitude, 35° 21' N. Longitude, 86° 14' W. Elevation, 1,075 feet.]

The station is at the residence of the observer on Jackson street in the northern portion of the town. Tullahoma is situated on the "Highland Rim;" the country for several miles around is level; the Cumberland Mountains are about 15 miles to the southeast.

The maximum and minimum thermometers are exposed in a Weather Bureau shelter, located in the yard. The thermometers are 5 feet above the ground. The rain gage is also in the yard; a low house stands 13 feet from the gage; the top of the gage is 2½ feet above the ground.

Tabulated data are from the combined records of Tullahoma, April 1, 1889, to December 31, 1903, and Manchester, 12 miles north of Tullahoma, March 1, 1883, to March 31, 1889. The following periods of observation have been used: Mean maximum and mean minimum temperatures, frost data, and miscellaneous phenomena, eight years; remainder of data, twenty years. Frost data are from temperatures of 32° or lower.

Monthly mean temperatures from 1889 to 1894 were obtained from tridaily readings; from 1895 to 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	39	48	69	29	— 5	54	33	5.2	9	2.5	7.2	3.7	N.
January.....	38	48	74	29	—14	44	29	5.9	10	7.0	8.4	3.5	S.
February.....	40	48	72	29	—20	47	29	4.6	9	1.2	9.2	3.4	N.
Winter mean.....	39	48		29				15.7	28	10.7	24.8	10.6	N.
March.....	49	59	81	40	0	55	39	6.5	11	3.6	9.8	1.9	S.
April.....	57	68	87	45	22	63	52	4.9	9	5.6	4.7	T.	S.
May.....	67	79	92	55	32	70	62	2.9	8	1.6	3.2	0.0	S.
Spring mean.....	58	69		47				14.3	28	10.8	17.7	1.9	S.
June.....	73	84	97	62	40	76	69	4.1	9	2.6	4.6	0.0	S.
July.....	76	87	100	65	41	83	73	4.9	9	7.6	10.6	0.0	S.
August.....	75	86	98	64	48	79	71	3.8	8	2.4	2.3	0.0	S.
Summer mean.....	75	86		64				12.8	26	12.6	17.5	0.0	S.
September.....	68	83	97	57	27	74	64	2.9	6	3.3	2.2	0.0	S.
October.....	58	73	91	46	22	64	51	2.5	5	3.9	2.4	0.0	N.
November.....	47	59	77	36	13	51	41	3.8	7	2.6	2.0	0.2	S.
Fall mean.....	58	72		46				9.2	18	9.8	6.6	0.2	S.
Annual mean.....	57	68	100	46	—20			52.0	100	43.9	66.6	12.7	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 1, 12, 31; Feb. 7-10, 12-15, 17.	None.	1900	Jan. 2, 3, 29, 30; Feb. 1, 2, 17, 18.	Aug. 9-11, 21; Sept. 6.
1896	Jan. 4; Feb. 21.	Aug. 15; Sept. 18.	1901	Mar. 6; Dec. 15-18, 20, 21.	June 22, 23, 25, 26, 28; July 1, 11, 12, 15, 16, 22, 23, 26, 28, 29; Aug. 3.
1897	Jan. 25-30.	June 29, 30; July 1-3; Aug. 29; Sept. 16.	1902	Feb. 3, 18.	June 12, 13; July 2, 3, 5-9, 16-18; Aug. 14, 15, 18-21.
1898	Feb. 3; Dec. 14.	June 10; July 1-3.	1903	Feb. 17-19; Dec. 26.	July 10, 11, 28; Aug. 23, 24; Sept. 7, 10, 13.
1899	Jan. 31; Feb. 1, 8-14; Mar. 7; Dec. 30, 31.	June 4, 5; July 7, 13-16; Sept. 5-7.			

TENNESSEE.

Southeastern District: HAMILTON COUNTY. Station: CHATTANOOGA.

L. M. PINDELL, Observer.

[Established January 8, 1879. Latitude 35° 4' N. Longitude 85° 14' W. Elevation, 700 feet.]

This station is located in the heart of the city of Chattanooga and has been in the custom-house on Eleventh and A streets since July 1, 1893. The instruments are exposed on platforms arranged on the roof of the building.

The instrument shelter is of the standard Weather Bureau pattern and is supported by four beams which hold it 6 feet above a steep gable roof covered with slate. The shelter contains the thermometers and thermograph, and on its roof is placed the sunshine recorder. The dry bulb thermometer is 106 feet above ground. The rain gage is 98 feet above ground on a platform, 20 feet northeast of the shelter; the wind vane and anemometer are 112 feet above the ground, the support being 4 feet southeast of the tipping bucket rain gage.

Tabulated data are from the following periods of observation: Snowfall, nineteen years, 1885-1903; humidity, fifteen years, 1889-1903; sunshine, twenty years, 1884-1903; remainder of data is from the full period of observation, twenty-five years, January 8, 1879, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	43	52	73	35	3	57	37	4.3	11	3.6	5.5	1.3	12.0	80	2.12	71	2.51	132	44	NW.
January.....	41	50	75	33	-7	52	34	5.8	13	3.5	4.5	2.0	9.8	81	1.99	72	2.37	138	44	NE.
February.....	44	53	78	36	-10	54	34	5.3	12	3.5	2.8	2.3	7.6	78	2.06	67	2.37	133	44	NW.
Winter mean.....	43	53	75	35	-4	54	34	15.4	36	10.6	12.8	5.6	9.8	80	2.06	70	2.42	134	44	S.
March.....	51	60	85	42	2	57	44	6.3	13	5.2	12.2	0.6	5.6	77	2.54	63	2.95	148	44	NW.
April.....	60	71	90	51	25	65	54	4.6	11	1.7	10.4	0.0	0.1	75	3.51	59	3.75	221	56	S.
May.....	68	79	93	58	40	74	65	3.8	11	2.2	6.2	0.0	0.0	79	5.02	65	5.53	239	56	SW.
Spring mean.....	60	70	89	50	24	65	54	14.7	35	9.1	28.8	0.6	1.9	77	3.69	62	4.08	213	53	S.
June.....	76	86	100	65	39	79	71	4.2	12	1.3	2.4	0.0	0.0	81	6.46	71	7.30	265	61	SW.
July.....	79	88	101	69	56	82	75	3.7	13	0.7	5.1	0.0	0.0	82	7.20	72	7.87	280	63	SW.
August.....	77	86	101	68	54	81	74	3.8	12	1.3	3.3	0.0	0.0	85	7.00	74	7.60	260	62	NE.
Summer mean.....	77	87	98	68	54	81	74	11.7	37	3.3	10.8	0.0	0.0	83	6.89	72	7.59	268	62	SW.
September.....	72	82	98	62	38	77	63	3.4	9	3.6	5.2	0.0	0.0	85	5.76	72	6.32	240	67	NE.
October.....	62	72	91	51	27	67	56	2.8	7	2.5	1.7	0.0	0.0	85	3.84	69	4.38	228	65	NE.
November.....	50	60	79	41	16	56	45	3.6	9	3.9	8.8	0.1	0.7	81	2.67	67	2.93	160	52	S.
Fall mean.....	61	71	86	51	21	66	56	9.8	25	10.0	15.7	0.1	0.7	84	4.10	69	4.54	212	61	NE.
Annual mean.....	60	70	101	51	-10	66	56	51.6	133	33.0	68.1	6.3	12.0	81	4.18	68	4.66	207	55	NE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Dec. 28, 29.....	June 13, 29; Aug. 11, 13-15.	1900	Feb. 1, 17, 18.....	Aug. 8-11, 19-21.
1895	Jan. 1, 12, 13; Feb. 7-9.	June 2, 3.	1901	Dec. 15, 16, 18, 20, 21.	June 22-25; July 4, 11, 12, 14, 21, 22, 24-26, 29; Aug. 3.
1896	Feb. 21.....	July 26, 28-30; Aug. 5-7, 10, 13, 15, 16, 22; Sept. 11, 17, 18.	1902	None.....	June 12, 13, 27; July 2-5, 7-9, 16-19; Aug. 4, 5, 8, 10, 13-15, 18, 19.
1897	Jan. 28, 29.....	June 12, 14, 27, 29, 30; July 1-3, 23; Aug. 1, 2, 4, 27-30; Sept. 15, 16.	1903	Feb. 17.....	None.
1898	None.....	June 9, 10; July 1, 2; Aug. 23.			
1899	Feb. 8-10, 12-14; Mar. 7.	June 4, 8; July 13, 15; Aug. 11, 19, 22-25; Sept. 5-7.			

MONTANA.

By R. FRANK YOUNG,
Observer.

MONTANA.

The State of Montana lies between parallels $44^{\circ} 6'$ and 49° north latitude and meridians 104° and 116° west longitude. Topographically the State is separated into two divisions by the Continental Divide or main range of the Rocky Mountains, which crosses the State diagonally from northwest to southeast at a distance of about 100 miles from the western boundary. From the main range to the eastern boundary, comprising about three-fifths of the area of the State, the country is mainly a rolling plain, with a gradual descent from an altitude of 4,000 to 5,000 feet at the base of the mountains to 2,000 feet at the eastern line. This plain, however, is broken in the north portion here and there by groups of mountains, and near the southern boundary by spurs from the main range, with many peaks rising to altitudes of 5,000 to 8,000 feet. The surface of the western two-fifths of the State is made up of numerous mountain ranges, shading abruptly into foothills and valleys, the latter having elevations varying from 2,500 to 5,000 feet above sea level. In this section are the headwaters of two great drainage basins. The eastern slope is drained by innumerable small streams tributary to the Missouri River and the western slope is the source of Clark's Fork of the Columbia.

There is a noticeable difference in the climate of the two sections, corresponding to their difference in physical features. The western or mountain climate (speaking more particularly of the valleys of this region) is milder in temperature, receives more moisture, and is less subject to sudden changes, to high winds and "blizzards," than the eastern plains.

Temperature.—The temperature values, especially the extremes, as published in the climatological reports, are apt to convey an erroneous impression of this element. The annual extremes are as great as are found in any other section of the country. But the low winter temperatures, as a rule, do not continue for long periods, and are accompanied by dry and a comparatively calm atmosphere, which renders them more endurable to animal life than much higher temperatures where these conditions are absent. It is largely due to these features that stock can be raised on ranges without shelter, and that outdoor occupations can be carried on with little interruption or discomfort during the winter and spring months. The summer temperatures, on the other hand, are never oppressive. During the middle of the long summer days of this high latitude the temperature often rises higher than in the Southern States, but it cools rapidly in the evening by radiation and hot nights are never experienced. There are usually a few days in one or more of the summer months when maximum temperatures of 90° or above are recorded in the mountain sections and 100° or above on the plains. In the western valleys minimum temperatures of -20° to -25° are comparatively rare, while on the plains it is not unusual to experience extremes of -40° to -45° . The annual mean temperature ranges from 37° in the extreme northeastern portion to 47° in some of the sheltered valleys. The warmest sections are in the upper Yellowstone Valley, in the basin west of the main divide, and in some of the smaller valleys in the central portion of the State immediately east of the mountains.

Frost.—Killing frosts or freezing temperatures may occur over the greater portion of the State in all except the summer months, although, as a rule, there are about five months practically free from destructive temperatures, and it is not unusual for the hardier plants to remain green until the middle of November or later.

Precipitation.—The effect of topography upon the rainfall is also noticeable. The greatest annual precipitation occurs over that portion lying west of the Continental Divide and in the higher mountain regions, and the least over the northeastern plains. There is, however, at least one notable exception to this rule in a considerable district at the eastern base of the main range in the central portion with very light rainfall. About one-half of the area receives from 10 to 15 inches annually, and the remainder of the State from 15 to 25 inches. Amounts of 20 inches or more, at the lower altitudes, fall only over limited areas, principally in the northwest portion.

A characteristic of the annual precipitation that is peculiarly favorable to agriculture is the large percentage deposited during the growing season. The amount received in the months of May to August, inclusive, nearly equals that for the remaining eight months.

Violent local storms or injurious hailstorms are exceedingly rare, and practically the only climatic element causing directly the loss of life or property is the high northerly wind with rain or snow and freezing temperature, and losses from this cause, which are confined mostly to the eastern plains, are in a great measure preventable, if not wholly so.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Beaverhead (see Butte)		Southwestern		Meagher (see Great Falls)		South central	
Broadwater (see Helena)		South central		Missoula	Missoula	Northwestern	802
Carbon (see Crow Agency)		do.		Park (see Helena)		South central	
Cascade	Great Falls	North central	801	Powell (see Missoula)		Northwestern	
Chouteau	Havre	do.	797	Ravalli (see Missoula)		Southwestern	
Custer	Miles City	Southeastern	806	Rosebud	Crow Agency	Southeastern	807
Dawson	Glendive	Northeastern	803	Sanders (see Missoula)		Northwestern	
Deerlodge (see Butte)		Southwestern		Silver Bow	Butte	Southwestern	805
Flathead	Kalispel	Northwestern	798	Sweet Grass (see Crow Agency)		South central	
Fergus (see Great Falls)		North central		Teton	Kipp	North central	796
Gallatin (see Helena)		South central		Valley	Glasgow	Northeastern	799
Granite (see Missoula)		Southwestern		Do.	Poplar	do.	800
Jefferson (see Helena)		South central		Yellowstone (see Crow Agency)		South central	
Lewis and Clarke	Helena	North central	804				
Madison (see Butte)		Southwestern					

STATE SUMMARY.

Station.		Temperature.									
		Num-ber.	Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Abso-lute maxi-mum.	Date.	Abso-lute mini-mum.	Date.	Average num-ber days with--	
										Maxi-mum above 90°.	Mini-mum below 32°.
			° F.	° F.	° F.	° F.		° F.			
Kipp	1		38	52	25	99	July, 1899	-46	February, 1899	5	203
Havre	2		41	53	30	108	July, 1886	-55	February, 1887	20	168
Kalispel	3		43	53	33	92	July, 1900	-19	February, 1900	2	130
Glasgow	4		40	54	26	113	do.	-50	February, 1899	27	196
Poplar	5		40	53	26	110	July, 1886	-63	January, 1885	20	188
Great Falls	6		46	58	34	106	August, 1892	-38	January, 1893	13	174
Missoula	7		44	56	31	104	July, 1890	-42	January, 1888	1	182
Glendive	8		43	57	29	117	July, 1893	-47	February, 1893	42	169
Helena	9		43	53	34	103	July, 1886	-42	January, 1893	6	142
Butte	10		42	53	31	94	June, 1900	-28	February, 1890	1	170
Miles City	11		45	56	33	111	July, 1901	-49	do.	29	160
Crow Agency	12		46	59	32	110	July, 1893	-48	December, 1884	26	160

Station.		Num-ber.	Frost.				Precipitation.				
			Average date of--		Date of--		Annual.	Spring.	Summer.	Autumn.	Winter.
			First killing in autumn.	Last in spring	Earliest killing in autumn.	Latest in spring.					
							Inches.	Inches.	Inches.	Inches.	Inches.
Kipp	1		Aug. 26		Aug. 3	July 21	18.5	5.5	6.1	4.7	2.2
Havre	2		Sept. 18	May 17	July 28		14.2	3.7	6.3	2.4	1.8
Kalispel	3		Oct. 10	May 5	Sept. 26	May 23	16.4	4.1	4.3	4.6	3.4
Glasgow	4		Sept. 5	May 26	Aug. 11	June 20	11.8	4.5	3.2	2.3	1.8
Poplar	5		Sept. 11	May 16	Sept. 3	June 26	13.1	3.6	5.0	2.4	1.8
Great Falls	6		Sept. 24	May 1	Sept. 9	May 20	13.4	4.5	5.0	2.3	1.6
Missoula	7		Sept. 5	May 30	Aug. 1	June 20	15.5	4.2	3.8	3.6	3.9
Glendive	8		Sept. 22	May 10	Sept. 11	June 9	15.9	4.9	6.1	2.7	2.2
Helena	9		Sept. 24	May 11	Sept. 5	do.	13.3	4.0	3.9	2.8	2.6
Butte	10		Sept. 15	May 29	Sept. 6	June 25	12.2	4.2	3.1	2.4	2.5
Miles City	11		Oct. 9	May 1	Sept. 7	Nov. 9	12.5	4.5	4.5	2.3	1.2
Crow Agency	12		Sept. 18	May 18	do.	June 21	13.6	4.3	4.8	2.6	1.9

MONTANA.

Northern Slope, West of the Rocky Mountains: FLATHEAD COUNTY. Station: KALISPELL.

H. B. DICK, Observer.

[Established by the Weather Bureau, May 3, 1899. Latitude, 48° 10' N. Longitude, 114° 25' W. Elevation, 2,920 feet.]

Kalispell is located on an open plain, with a gentle slope from east to west. To the eastward from the station the country is practically level for 10 or 12 miles to the base of the Kootenai range of mountains, the summit of which attains an altitude of nearly 5,000 feet.

The thermometers are exposed in a standard shelter placed on the roof of the Conrad National Bank building, 45 feet above the ground and 10 feet above a nearly flat tin roof. The rain gage is also exposed on the roof.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MAY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Mean humidity.		Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Relative, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.					
December.....	27	33	50	22	0	31	25	1.4	12	1.1	2.2	10.4	6.2	87	86	50	18	W.
January.....	26	32	55	19	- 18	30	21	1.0	13	1.3	0.8	7.0	3.0	86	79	81	29	W.
February.....	24	32	51	15	- 19	27	21	1.0	12	0.8	1.7	7.8	4.2	87	71	130	45	W.
Winter mean.....	26	32	.....	19	.....	.....	.....	3.4	37	3.2	4.7	25.2	.....	87	79	87	31	W.
March.....	35	44	64	27	6	39	33	0.6	10	1.0	0.5	2.2	3.5	80	56	186	50	W.
April.....	43	54	75	32	22	48	41	0.8	8	0.4	0.6	0.6	1.5	78	41	233	56	W.
May.....	51	62	88	40	17	55	48	2.7	12	2.0	4.5	1.3	5.2	84	49	236	50	SE.
Spring mean.....	43	53	.....	33	.....	.....	.....	4.1	30	3.4	5.6	4.1	.....	81	49	218	52	W.
June.....	57	68	92	45	31	62	51	1.9	11	2.9	1.5	T.	T.	81	45	288	60	W.
July.....	62	77	92	48	35	64	60	1.3	7	0.3	2.6	0.0	0.0	78	37	392	74	W.
August.....	61	74	91	47	35	66	56	1.1	8	0.1	1.0	0.0	0.0	80	51	280	63	W.
Summer mean.....	60	73	.....	47	.....	.....	.....	4.3	26	3.3	5.1	T.	.....	80	44	320	66	W.
September.....	52	63	83	40	24	55	49	2.0	10	1.8	0.8	T.	T.	83	52	231	53	W.
October.....	45	56	74	34	19	48	42	0.7	8	0.4	0.2	0.2	0.9	87	62	176	52	W.
November.....	33	40	64	26	- 12	39	28	1.9	13	0.7	3.0	11.3	14.0	87	78	72	26	W.
Fall mean.....	43	53	.....	33	.....	.....	.....	4.6	31	2.9	4.0	11.5	.....	86	64	160	44	W.
Annual mean.....	43	53	92	33	- 19	.....	.....	16.4	124	12.8	19.4	40.8	14.0	84	59	196	48	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD MAY 1, 1900, TO JANUARY 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1900	Feb. 15, 16.....	June 23; July 22-25, 30; Aug. 1.	1902	Jan. 24-28; Feb. 1.....	None.
1901	Nov. 21; Dec. 31.....	July 21-23; Aug. 14, 15.	1903	Nov. 18.....	July 22; Aug. 19.

MONTANA.

Eastern Slope of Rocky Mountains, Missouri Valley: VALLEY COUNTY. Station: GLASGOW.

JOHN J. KERR, Observer.

[Established by the Weather Bureau in July, 1893. Latitude, 48° 10' N. Longitude, 106° 36' W. Elevation, 2,092 feet.]

The station is located near the northern limits of the town of Glasgow, which is situated on the north side of Milk River, about 25 miles above its junction with the Missouri. The surrounding country is a rolling plain, with small hills one-fourth of a mile north and 1 mile south of station.

The maximum and minimum thermometers are exposed in a standard shelter of the Weather Bureau, which is attached to the north side of an outbuilding, 4 feet above the ground, the door opening to the north.

The mean temperature is determined by dividing the sum of the mean maximum and mean minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	
December.....	16	27	53	4	-40	24	3	0.6	4	0.9	0.7	W.
January.....	9	23	53	-3	-44	20	0	0.5	3	0.1	0.4	W.
February.....	9	22	60	-5	-50	17	-1	0.7	5	0.5	1.2	W.
Winter mean.....	11	24		-1				1.8	12	1.5	2.3	W.
March.....	21	35	73	8	-45	33	7	1.5	5	1.5	1.4	W.
April.....	45	59	89	30	-19	51	36	1.0	4	1.2	0.9	W.
May.....	57	72	98	41	22	68	47	2.0	9	1.6	5.7	W.
Spring mean.....	41	55		26				4.5	18	4.3	8.0	W.
June.....	62	77	109	48	30	70	56	2.0	9	0.2	1.9	W.
July.....	70	88	113	53	36	73	67	0.8	5	0.2	1.1	W.
August.....	68	85	110	51	30	73	64	0.4	4	0.9	0.2	W.
Summer mean.....	67	83		51				3.2	18	1.3	3.2	W.
September.....	56	72	100	39	14	62	53	0.6	4	0.8	0.0	E.
October.....	44	59	89	28	7	48	37	0.9	5	0.7	1.6	W.
November.....	24	37	76	12	-41	38	4	0.8	4	0.8	0.4	W.
Fall mean.....	41	56		26				2.3	13	2.3	2.0	W.
Annual mean.....	40	54	113	26	-50			11.8	61	9.4	15.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 4-7, 20-24, 31; Feb. 13, 17-19.	July 7, 8, 10, 14-16, 19-25, 29, 30; Aug. 4, 6, 9, 17-21, 24-27.	1900	Jan. 28; Feb. 5, 7-9, 13-17; Mar. 6; Nov. 19, 20, 22.	May 10, 11; June 20-25; July 8, 11, 24, 25, 30, 31; Aug. 1, 2, 16, 19, 30.
1895	Jan. 2, 6, 20-22, 24-27, 30, 31; Feb. 1, 2, 5, 6, 11-15; Dec. 1, 2.	June 30; July 1-4, 12, 25, 29, 30; Aug. 1, 3, 6, 12, 20.	1901	Jan. 7, 9, 10; Feb. 4....	May 16, 26, 28; July 10-12, 14-22, 30, 31; August missing.
1896	Jan. 2, 3, 14, 15, 23, 24; Mar. 2; Nov. 17-23, 27-29; Dec. 2.	June 29, 30; July 5, 8-10, 16, 28; Aug. 1.	1902	Jan. 25-28, 30, 31; Feb. 1, 2, 8; Dec. 6, 7, 11, 12, 14-16.	May missing; July 11, 21-23, 27, 31; Aug. 14, 15, 24, 26, 27.
1897	Jan. 23-26; Feb. 17, 21, 22; Mar. 8, 9, 12-14; Nov. 26-28; Dec. 1-3, 14-17.	June 12-15; July 1, 12, 22, 27, 28; Aug. 10-12, 19, 22, 24.	1903	January missing; Feb. 2, 4, 6, 14-16; Nov. 18; Dec. 13.	May 13, 14; June 15-17; July 21-23; Aug. 16, 20.
1898	Mar. 26-28.....	June 19; July 11-16, 25; Aug. 8, 18-20, 26.			
1899	Jan. 3, 4, 6, 28, 30, 31; Feb. 1-3, 5-12, 26, 28; Mar. 3, 5, 21, 22, 27, 31; Dec. 18.	July 18, 20.			

MONTANA.

Eastern Slope of Rocky Mountains, Upper Missouri Valley: VALLEY COUNTY. Station: POPLAR.

H. M. COSIER, Observer.

[Established by Signal Service in September, 1881. Latitude, 48° 0' N. Longitude, 105° 11' W. Elevation, 2,020 feet.]

This station was established in September, 1881, as a regular Signal Service station under the name Poplar River. It was discontinued as such on March 31, 1889, and conducted as a voluntary station by the post surgeon of camp Poplar River from that date to September, 1893, when it was discontinued. It was reestablished in May, 1895, as a voluntary station.

The station is located near the center of the village of Poplar. The town is situated on the bluff immediately north of the Missouri River and near the mouth of the Poplar River. The maximum and minimum thermometers are exposed in a standard shelter of the Weather Bureau, located 90 feet north of the nearest building and 6 feet above ground. The rain gage is exposed on the roof of a building, the top of the gage being about 20 feet above the ground. The mean temperature is obtained by dividing the sum of the mean maximum and mean minimum by 2. Frost and snow record begins 1892. Precipitation record missing from 1889 to 1891.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.		In.
December	14	27	70	3	-49	26	-3	0.5	4	0.7	T.	7.0	10.0	W.
January	6	17	50	-6	-63	22	-10	0.7	4	0.4	1.5	6.9	11.0	W.
February	6	19	58	-3	-54	17	-8	0.6	5	0.4	0.7	7.0	7.0	W.
Winter mean	9	21		-2				1.8	13	1.5	2.2	20.9		W.
March	22	33	73	9	-36	35	9	1.0	5	0.2	1.8	10.1	15.0	NE.
April	43	56	89	30	-11	51	38	0.9	4	0.9	2.4	2.3	15.0	NE.
May	56	70	104	41	15	65	46	1.7	6	1.4	3.7	0.8	6.0	NE.
Spring mean	40	53		27				3.6	15	2.5	7.9	13.2		NE.
June	64	77	105	50	30	71	58	2.6	7	0.8	3.8	0.0	0.0	W.
July	70	86	110	55	37	77	64	1.7	6	0.9	1.2	0.0	0.0	W.
August	67	81	106	51	33	71	60	1.0	4	0.5	0.6	0.0	0.0	NW.
Summer mean	67	81		52				5.3	17	2.2	5.6	0.0		W.
September	56	72	99	41	16	64	52	0.8	3	0.2	0.2	0.0	0.0	W.
October	44	59	93	30	-2	49	37	0.8	3	0.4	0.4	1.8	6.0	W.
November	26	37	75	13	-36	38	8	0.8	4	0.7	1.6	9.4	10.0	W.
Fall mean	42	56		28				2.4	10	1.3	2.2	11.2		W.
Annual mean	40	53	110	26	-63			13.1	55	7.5	17.9	45.3	15.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	No record.	No record.	1899	Jan. 5, 7, 17, 28, 30, 31; Feb. 1-12, 23, 28; Mar. 3, 22; Dec. 18.	July 8, 9, 17, 18, 20, 21; Aug. 8, 14.
1895	No record Jan. to Apr. and Nov.; Dec. 2.	June 5, 30; July 1-5; Aug. 3, 12; Sept. 2.	1900	Feb. 7-9, 13-15; Nov. 20-23.	May 10, 11, 26; June 20-25; July 23, 26, 28, 29, 31; Aug. 1, 2, 6, 16, 17.
1896	Jan. 3; Nov. 17-20, 27-30; Dec. 1.	June 30; July 1, 5, 9, 10, 28; Aug. 1, 2, 27.	1901	Jan. 1, 8-11; Feb. 4; Dec. 13, 14.	May 17, 19, 27; July 6, 7, 11-13, 17-19, 22, 23, 31; Aug. missing; Sept. 2.
1897	Jan. 22-25, 27; Feb. 22, 25; Mar. 8, 9, 12-14; Nov. 26; Dec. 1, 2, 16, 17.	June missing; July 12, 16, 27, 28; Aug. 5, 11, 12.	1902	Jan. 26-29; Feb. 1, 4, 8; Dec. 6, 7, 11, 12.	July 11, 13, 23, 28; Aug. 13, 14, 24, 27.
1898	Feb. 19; Mar. 21, 27, 28; Nov. 21.	June 19, 20; July 11-16, 25; Aug. 3, 8, 18-20, 26.	1903	Jan. 11, 29; Feb. 2-4, 6, 14-18.	May 14; July 22, 23; Aug. 16, 20.

MONTANA.

Eastern Slope of the Rocky Mountains, Missouri Valley: CASCADE COUNTY. Station: GREAT FALLS.

S. H. BAUMAN, Observer.

[Established by the Weather Bureau in December, 1891. Latitude, 47° 28' N. Longitude, 111° 15' W. Elevation, 3,350 feet.]

The station is near the center of the city of Great Falls, situated on the Missouri River, about 50 to 75 miles east of the base of the main range of the Rocky Mountains. The surrounding country is a rolling prairie for several miles in all directions.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter on the north side of a brick building, about 25 feet above the ground. The top of the rain gage is about 18 feet above the ground and 50 feet from the nearest building.

The mean temperature is determined by dividing the sum of the mean maximum and mean minimum by 2. Portion of tabulated data for period from 1893 to 1903. Remainder computed from establishment of station.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	39	60	22	-27	37	24	0.5	6	0.2	1.2	5.0	5.0	SW.
January.....	26	36	86	14	-38	33	17	0.6	8	0.7	0.7	7.3	3.5	SW.
February.....	26	36	84	14	-35	39	11	0.5	7	0.5	0.4	6.1	9.3	SW.
Winter mean.....	27	37		17				1.6	21	1.4	2.3	18.4		SW.
March.....	32	43	71	20	-27	42	22	0.7	9	0.1	0.6	7.3	4.4	SW.
April.....	45	58	88	34	7	51	42	1.2	8	1.0	1.9	2.2	5.9	SW.
May.....	55	67	94	42	20	62	49	2.6	10	0.2	0.3	1.2	4.5	SW.
Spring mean.....	44	56		32				4.5	27	1.3	2.8	10.7		SW.
June.....	62	74	102	49	34	69	57	2.8	11	2.2	6.9	0.0	0.0	W.
July.....	68	83	103	54	35	71	65	1.6	9	0.8	3.0	0.0	0.0	SW.
August.....	67	82	106	52	35	70	62	0.6	6	0.2	0.8	T.	T.	SW.
Summer mean.....	66	80		52				5.0	26	3.2	10.7	T.		SW.
September.....	56	69	100	43	22	61	52	1.1	7	T.	0.1	0.6	4.8	SW.
October.....	49	62	90	36	11	55	41	0.4	5	0.1	T.	1.6	3.2	SW.
November.....	33	43	82	23	-25	44	15	0.8	7	0.6	1.4	8.3	4.3	SW.
Fall mean.....	46	58		34				2.3	19	0.7	1.5	10.5		SW.
Annual mean.....	46	58	106	34	-38			13.4	93	6.7	17.3	39.6	9.3	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 3, 5, 8, 23; Feb. 20.	July 21, 23; Aug. 18, 21, 25, 26.	1898	None.	July 11.
1895	Jan. 7; Feb. 6, 13, 14.	Aug. 2, 3, 5.	1899	Jan. 4; Feb. 2-4, 11, 12.	July 18.
1896	Jan. 3, 15, 16; Mar. 1-3; Nov. 29.	June 29, 30; July 1, 5, 6, 8-11, 13-15, 16; Aug. 1.	1900	Feb. 15.	June 20-23; July 25, 31; Aug. 1.
1897	Jan. 25; Mar. 7; Nov. 28.	July 28, 29; Aug. 6, 7-11, 20, 21.	1901	Jan. 8.	July 21, 22.
			1902	Jan. 25.	None.
			1903	Nov. 17, 18.	Aug. 19.

MONTANA.

Columbia River Drainage Basin: MISSOULA COUNTY. Station: MISSOULA.

Prof. M. J. ELROD, Observer.

[Established by Signal Service November, 1870. Latitude. 46° 50' N. Longitude, 113° 59' W. Elevation, 3,225 feet.]

The records of this station were kept by the post surgeon at Fort Missoula until March, 1898, when the station was moved to the State University. The station is in the southern portion of the city of Missoula, on the south side of the Missoula River, on a plain 1 mile west of a mountain, the summit of which is about 1,850 feet above the city. Mount Lo Lo, 25 miles southwest, has perpetual snow. Occasional barometric influences produce severe winds out of Hell Gate Canyon, close to the town on the east.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter 50 feet from a house and 25 feet from a low shed; it is 4 feet above ground. The rain gage is 50 feet from the building, has a ground exposure, the top being about 3 feet above ground.

The mean temperature is obtained by taking half the sum of the mean maximum and the mean minimum.

The record for mean maximum and mean minimum temperatures, number of days with minimum below 32°, and number of days with maximum above 90° begins with 1892. Precipitation data includes the above period and also a period from November, 1870, to March, 1876. The record for the absolute maximum and absolute minimum temperatures begins with 1880. The period of frost observations begins in 1891.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	25	33	59	18	-23	37	16	1.5	6	0.7	2.5	7.0	7.0	W.
January.....	21	31	58	13	-42	34	4	1.5	7	T.	1.4	9.9	16.0	W.
February.....	25	34	60	14	-36	35	11	0.9	5	1.1	1.5	5.5	6.0	W., S.W.
Winter mean.....	24	33	.....	15	.....	.....	.....	3.9	18	1.8	5.4	22.4	.....	W.
March.....	34	45	72	23	-18	43	27	1.0	7	1.0	2.9	4.6	6.0	W.
April.....	45	57	82	31	16	51	39	1.0	6	1.0	0.8	1.6	3.0	W.
May.....	54	66	89	39	22	59	46	2.2	8	1.5	1.6	T.	T.	W.
Spring mean.....	44	56	.....	31	.....	.....	.....	4.2	21	3.5	5.3	6.2	.....	W.
June.....	60	73	96	44	30	68	53	2.1	8	1.0	4.8	T.	T.	W.
July.....	67	82	104	48	34	73	63	1.0	5	0.0	1.8	0.0	0.0	W.
August.....	66	83	103	47	25	70	61	0.7	4	0.0	3.6	0.0	0.0	W.
Summer mean.....	64	79	.....	46	.....	.....	.....	3.8	17	1.0	10.2	T.	.....	W.
September.....	55	69	93	39	20	64	51	1.2	7	0.3	0.8	0.0	0.0	W.
October.....	45	58	83	31	7	52	40	1.2	5	1.3	4.0	0.6	2.0	W., N.W.
November.....	32	42	68	24	-20	39	24	1.2	9	1.2	2.8	3.7	3.4	N.W.
Fall mean.....	44	57	.....	32	.....	.....	.....	3.6	21	2.8	7.6	4.3	.....	W.
Annual mean.....	44	56	104	31	-42	.....	.....	15.5	77	9.2	28.4	32.9	16.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	None.....	July 24; Aug. 24, 25.	1899	Feb. 4.....	July 17-20.
1895	Feb. 13.....	None.	1900	None.....	July and August missing.
1896	None.....	June 30; July 6, 9, 11, 12, 15, 16.	1901	.....do.....	July 18, 19, 21, 22, 23-31; Aug. 5.
1897	.....do.....	Aug. 11.	1902	.....do.....	July 23.
1898	.....do.....	None.	1903	.....do.....	July and August missing.

MONTANA.

Eastern Slope of the Rocky Mountains, Missouri Valley: DAWSON COUNTY. Station: GLENDIVE.

J. H. RAY, Observer.

[Established by the Signal Service May, 1889. Latitude, 47° 06' N. Longitude, 104° 30' W. Elevation, 2,069 feet.]

The station is located near the town of Glendive, which is situated on the east side of the Yellowstone River, about 70 miles above its junction with the Missouri. The valley at this point is about 2 miles wide with high buttes or hills east and west of the station.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter 20 feet from the nearest building, about 5 feet above ground, with the shelter door opening north. The rain gage is 60 feet from the building and the top is 4 feet above the ground.

The mean temperature is determined by dividing the sum of the mean maximum and mean minimum by 2.

Most of tabulated data is for the period from May, 1889, to December 31, 1903. The following data is for the period from 1892-1903: Average number of days with 0.01 inch or more precipitation, average number of days with maximum above 90°, average number of days with minimum below 32°, and all data in regard to snowfall.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	21	30	55	9	-32	29	9	0.7	4	0.9	0.3	7.5	6.5	SW.	
January.....	14	25	61	4	-43	26	0	0.8	4	1.4	1.7	7.9	7.0	SW.	
February.....	12	23	62	1	-47	25	2	0.7	4	0.4	0.8	7.0	8.0	SW.	
Winter mean.....	16	26		5				2.2	12	2.7	2.8	22.4		SW.	
March.....	25	36	81	13	-34	34	13	1.4	5	2.2	1.5	11.4	13.0	SW.	
April.....	47	60	96	32	-6	54	41	1.2	5	0.6	1.6	3.5	10.0	SW.	
May.....	58	73	108	43	23	66	51	2.3	6	0.8	7.0	1.2	5.0	SW.	
Spring mean.....	43	56		29				4.9	16	3.6	10.1	16.1		SW.	
June.....	65	81	107	50	32	72	59	3.4	8	2.6	4.2	0.0	0.0	SW.	
July.....	72	89	117	56	36	78	62	1.8	5	0.2	1.5	0.0	0.0	SW.	
August.....	71	88	113	54	38	75	66	0.9	5	0.8	0.7	0.0	0.0	SW.	
Summer mean.....	69	86		53				6.1	18	3.6	6.4	0.0		SW.	
September.....	59	75	103	43	22	69	53	1.1	3	0.2	0.8	T.	T.	SW.	
October.....	48	62	93	33	7	52	42	0.9	3	T.	0.4	1.5	5.0	SW.	
November.....	29	40	75	17	-26	40	12	0.7	3	0.0	2.0	7.7	10.0	SW.	
Fall mean.....	45	59		31				2.7	9	0.2	3.2	9.2		SW.	
Annual mean.....	43	57	117	29	-47			15.9	55	10.1	22.5	47.7	13.0	SW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 6, 22-24; Feb. 11, 18, 20; Dec. 27.	May 12, 15, 28-30; June 7, 17, 18, 29; July 4, 7-10, 13-17, 19-25, 28-30; Aug. 3, 4, 6, 7, 9, 17-22, 24, 26, 27, 31; Sept. 12, 29, 30; Oct. 1, 3, 7, 8, 11, 12, 15; Sept. 1, 13.	1899	Jan. 29, 31; Feb. 1, 3, 5-7, 9-11, 27; Dec. 17.	June 28; July 1, 9-11, 17-21, 23; Aug. 13, 24.
1895	Jan. 25; Feb. 3, 6, 7, 15.	June 3, 23, 29, 30; July 1-4, 13, 24, 25, 27, 29, 30; Aug. 1, 3, 7, 8, 11, 12, 15; Sept. 1, 13.	1900	Feb. 7, 8, 14; Nov. 20.	May 10, 11, 25, 26; June 3-5, 8, 19-25, 30; July 11, 12, 17, 20, 21, 23-26, 31; Aug. 1, 2, 6, 7, 17, 28, 29.
1896	Jan. 3, 23, 25; Nov. 20, 29; Dec. 2.	June 3, 13, 15, 16, 27; July 4, 5, 7-10, 29; Aug. 1-3.	1901	Jan. 7-9; Dec. 12, 13.	May 1, 16-18, 28-30; July 7, 11-13, 16, 18-24, 31; Aug. 5, 12, 15-17, 26, 27; Sept. 1, 2.
1897	Jan. 24, 25; Feb. 23, 26; Mar. 13-15, 18; Dec. 2, 3, 16.	May 4, 16, 17; June 11-15; July 12, 15, 16, 22, 27, 28; Aug. 11, 12, 24; Sept. 2, 6, 7.	1902	Jan. 24, 26, 27, 31; Feb. 1, 3, 7; Dec. 6, 10.	July 11, 15, 22, 23, 28; Aug. 1, 6, 14, 23, 24.
1903	None.	May missing; June 19-21; July 4, 5, 11, 12, 14-16, 25; Aug. 3, 15, 18-21, 25, 26, 29; Sept. 27.	1903	Jan. 10, 28; Feb. 1-3, 5, 6, 12-15, 17; Dec. 12.	May 23; June 17; July 22-24; Aug. 16, 17, 19, 20.

MONTANA.

Rocky Mountains: LEWIS AND CLARKE COUNTY. Station: HELENA.

R. F. YOUNG, Observer.

[Established by Signal Service April 1, 1880. Latitude 46° 34' N. Longitude 112° 4' W. Elevation, 4,066 feet.]

This station is centrally located in the city of Helena at the entrance to a narrow valley or gulch, which trends nearly due northeast to southwest; to the east, south, and west there is a rather abrupt rise of 50 to 75 feet to a narrow table-land or "bench," which rises gradually to the foothills and mountains. About 1 mile to the westward is Mount Helena, with an altitude of 5,462 feet, and south at a distance of 1½ miles is Mount Ascension, altitude 5,360 feet. Between lines drawn to northeast and northwest there is a gradual slope into a broad valley.

Since its establishment, April 1, 1880, the station has had four different locations, as follows: Brown Block, the building at the northwest corner of Price and Main streets, Montana National Bank building, and Power Block. These locations are within a short distance of each other, and their elevations do not differ more than 50 feet. The thermometers are exposed on the roof of building, 88 feet above ground, in a standard Weather Bureau shelter, elevated 10 feet above roof. The rain gage is on the roof, the top of the gage being 3 feet above the roof and 80 feet above the ground.

Tabulated data are from the following periods of observation: Sunshine, ten years; humidity, fifteen years. Remainder of data is from full period of observation, twenty-four years, April 1, 1880, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 25	° F. 33	° F. 58	° F. 18	° F. -40	° F. 36	° F. 7	In. 0.8	8	0.2	In. 0.4	In. 7.1	In. 10.0	P.ct. 70	Grs. 0.99	P.ct. 64	Grs. 1.14	108	41	SW.
January.....	19	28	63	12	-42	31	5	1.1	10	0.4	2.9	10.1	8.2	71	0.77	65	0.88	121	43	SW.
February.....	22	30	66	14	-41	35	5	0.7	8	0.7	0.5	8.6	14.6	72	0.85	62	0.96	138	48	SW.
Winter mean.....	22	30	66	15	-41	35	5	2.6	26	1.3	3.8	25.8	.....	71	0.87	64	0.99	122	44	SW.
March.....	32	40	72	23	-20	41	21	0.8	8	0.6	T.	10.9	10.5	70	1.09	55	1.25	198	53	SW.
April.....	44	54	82	34	6	49	37	1.2	8	0.1	1.6	4.4	6.4	64	1.52	42	1.82	235	57	SW.
May.....	52	63	89	42	22	60	47	2.0	11	2.2	1.6	1.2	7.4	66	2.17	40	2.22	252	54	SW.
Spring mean.....	42	52	89	33	11	50	41	4.0	27	2.9	3.2	16.5	.....	67	1.59	46	1.77	228	55	SW.
June.....	59	70	102	49	31	66	54	2.1	12	0.4	3.5	0.1	1.2	65	2.74	39	2.92	286	60	SW.
July.....	67	79	103	54	36	71	62	1.2	8	0.3	2.0	0.0	0.0	59	3.06	30	2.90	352	73	SW.
August.....	66	79	98	54	34	71	61	0.6	5	0.3	1.8	0.0	0.0	58	2.81	27	2.45	327	74	SW.
Summer mean.....	64	76	103	52	34	69	59	3.9	25	1.0	7.3	0.1	.....	61	2.87	32	2.75	322	69	SW.
September.....	56	67	90	45	20	63	50	1.2	7	0.5	2.5	0.6	3.4	63	2.31	37	2.35	231	61	SW.
October.....	46	56	80	36	3	51	38	0.8	6	0.1	2.0	3.1	14.0	64	1.69	46	1.81	209	62	SW.
November.....	32	40	71	23	-22	41	18	0.8	7	0.8	1.3	7.8	14.0	66	1.22	59	1.45	119	42	SW.
Fall mean.....	44	54	82	35	11	50	38	2.8	20	1.4	5.8	11.5	.....	64	1.74	47	1.87	186	56	SW.
Annual mean.....	43	53	103	34	-41	59	41	13.3	98	6.6	20.1	53.9	14.6	66	1.77	47	1.85	215	56	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 23.....	Aug. 25.	1899	Feb. 1-6, 11, 22.....	July 18.
1895	None.....	None.	1900	Feb. 15, 16.....	June 21; July 31.
1896	Jan. 15; Nov. 27, 28...	July 6.	1901	None.....	July 18, 21, 22, 31.
1897	Jan. 25-27.....	July 27; Aug. 11.	1902	Jan. 25, 26.....	None.
1898	None.....	None.	1903	None.....	Do.

MONTANA.

Western Rocky Mountain Range: SILVERBOW COUNTY. Station: BUTTE.

J. R. WHARTON, Observer.

[Established by the Weather Bureau April, 1894. Latitude 46° 2' N. Longitude, 112° 45' W. Elevation, 5,716 feet.]

The station is near the center of the city of Butte, about the middle of a south slope 2 miles in length, and 250 feet above the valley. East 5 miles and south and southwest 20 to 25 miles is the main divide of the Rocky Mountains, forming a horseshoe around the city, with elevations ranging from 8,000 to 10,000 feet, while an opening westward to Deer Lodge Valley brings all the winds from the west.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter on a north veranda, 18 feet above the ground. The rain gage is exposed on the roof of the same building, 90 feet from other buildings, and is 40 feet above the ground. The mean temperature is determined by dividing the sum of the mean maximum and mean minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 26	° F. 34	° F. 55	° F. 18	° F. -18	° F. 32	° F. 21	In. 0.8	5	In. 0.5	In. 1.1	In. 9.1	In. 8.0	NW.
January.....	24	34	51	15	-27	30	18	0.8	6	0.9	2.4	8.0	10.0	NW.
February.....	24	33	58	15	-28	30	15	0.9	5	0.1	1.4	6.1	3.5	NW.
Winter mean....	25	34		16				2.5	16	1.5	4.9	23.2		NW.
March.....	28	38	61	18	-21	38	22	1.1	8	0.3	1.2	10.4	0.0	NW.
April.....	40	51	74	29	2	45	35	1.2	7	0.2	1.6	8.6	11.0	NW.
May.....	49	60	85	38	16	57	42	1.9	8	1.1	2.5	1.2	4.0	NW.
Spring mean....	39	50		28				4.2	23	1.6	5.3	20.2		NW.
June.....	56	69	94	43	26	64	49	1.4	10	0.8	0.6	T.	T.	NW.
July.....	63	77	92	49	33	66	60	1.1	6	1.1	0.9	0.0	0.0	NW.
August.....	63	77	91	40	35	66	59	0.6	4	0.2	2.4	T.	T.	NW.
Summer mean....	61	74		47				3.1	20	2.1	3.9	T.		NW.
September.....	52	65	86	39	20	57	46	0.9	4	1.2	0.6	0.8	3.0	NW.
October.....	45	57	79	34	15	48	41	0.8	4	0.2	1.6	1.1	2.0	NW.
November.....	34	43	66	25	-24	41	22	0.7	5	0.3	0.1	6.8	5.0	NW.
Fall mean.....	44	55		33				2.4	13	1.7	2.3	8.7		NW.
Annual mean....	42	53	94	31	-28			12.2	72	6.9	16.4	52.1	11.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	None.	None.	1899	Feb. 2-6.	None.
1895	Jan. 27.	Do.	1900	None.	Do.
1896	Mar. 2; Nov. 27, 28.	Do.	1901	do.	Do.
1897	Jan. 25-27.	Do.	1902	Jan. 25, 26.	Do.
1898	None.	Do.	1903	None.	Do.

MONTANA.

Eastern Slope of Rockies, Yellowstone Valley: CUSTER COUNTY. Station: MILES CITY.

ALBERT W. KENNIE, Station agent.

[Established by the Weather Bureau, October, 1891. Latitude, 46° 25' N. Longitude, 105° 49' W. Elevation, 2,371 feet.]

This has been a regular Weather Bureau station since its establishment. The office and station is at the corner of Park and Main streets, near the center of the town, the site of which is on the east side of the Yellowstone River. The surrounding country is a rolling plain: the hills, at a distance of 1½ miles to the west and north, are about 300 feet above the town.

The wet and dry bulb and maximum and minimum thermometers are exposed in a standard Weather Bureau shelter on the roof of a building, 42 feet above ground, the door of the shelter opening north. The rain gage is also exposed on the roof, the top being 34 feet above the ground.

The mean temperatures were obtained by dividing the sum of the maximum and minimum by 2.

The record for humidity is for a period of ten years. All other tabulated data for period from January 1, 1892, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
December.....	23	33	62	14	-31	31	15	In.	6	0.1	0.2	2.3	86	0.90	81	1.14	SW.
January.....	18	28	60	8	-45	29	7	0.4	7	0.2	0.7	4.1	87	0.73	82	0.98	S.
February.....	16	27	68	6	-49	28	4	0.4	7	0.5	0.1	3.6	89	0.82	81	1.05	S.
Winter mean.....	19	29	.....	9	.....	.....	.....	1.2	20	0.8	1.0	10.0	87	0.82	81	1.06	S.
March.....	28	38	77	17	-26	36	15	1.2	9	0.3	4.0	11.5	86	1.02	73	1.46	N.
April.....	46	58	90	35	-7	53	40	1.2	7	0.6	1.4	1.1	81	1.77	56	2.26	NW.
May.....	58	70	100	45	24	68	50	2.1	9	1.1	3.5	0.4	75	2.64	51	3.10	E.
Spring mean.....	44	55	.....	32	.....	.....	.....	4.5	25	2.0	8.9	23.0	81	1.81	60	2.27	NW.
June.....	66	78	106	53	35	74	61	2.2	10	0.9	2.1	0.0	76	3.52	51	4.00	NW
July.....	73	87	111	59	42	78	71	1.3	8	2.7	0.3	0.0	71	4.04	42	4.61	NW
August.....	72	86	106	57	39	75	69	1.0	5	1.4	0.4	0.0	69	3.50	42	4.44	NW.
Summer mean.....	70	84	.....	56	.....	.....	.....	4.5	23	5.0	2.8	0.0	72	3.69	45	4.35	NW.
September.....	59	73	99	46	22	67	55	0.9	5	1.6	0.7	T.	76	2.56	52	3.31	NW.
October.....	48	61	88	35	14	52	42	0.8	6	0.3	1.9	1.2	81	1.77	63	2.54	NW.
November.....	30	40	76	20	-26	42	13	0.6	7	0.3	0.4	4.6	85	1.16	76	1.55	S.
Fall mean.....	46	58	.....	34	.....	.....	.....	2.3	18	2.2	3.0	5.8	81	1.83	64	2.47	NW.
Annual mean.....	45	56	111	33	-49	.....	.....	12.5	86	10.0	15.7	38.8	80	1.87	62	2.54	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 3, 6, 9, 23, 24; Feb. 11, 20; Dec. 27.	July 8, 10, 16, 20, 22, 24, 25, 30; Aug. 4, 6, 9, 17, 19, 21-23, 26, 27.	1899	Feb. 1-7, 10-12.....	July 9-11, 18-21, 24; Aug. 14, 21.
1895	Jan. 3, 26; Feb. 6, 7, 12-15.	July 1, 2, 4, 24, 27, 30, 31; Aug. 3, 11, 12, 20.	1900	None.....	May 10, 11, 26; June 8, 20-25; July 11, 21, 24-26, 29-31; Aug. 1, 2, 7.
1896	Jan. 3, 23; Nov. 21, 28-30.	June 30; July 7-11, 16; Aug. 1, 2, 27, 29.	1901	Feb. 6; Dec. 13, 16.....	May 16, 17, 28, 29; July 6, 7, 11-13, 17-19, 21-23, 31; Aug. 13, 15, 16; Sept. 2.
1897	Jan. 24-26, 28; Feb. 23; Nov. 28, 29; Dec. 2, 3, 16, 17.	June 13-15, 21; July 1, 2, 12, 15, 16, 27, 28; Aug. 11, 12, 24, 25; Sept. 6, 7.	1902	Jan. 26, 27.....	June 9; July 11, 27, 28; Aug. 14, 24.
1898	None.....	June 18, 19; July 5, 12, 15, 16, 25; Aug. 8, 18-21, 26.	1903	Feb. 4, 15, 16.....	May 14; June 17; July 11, 27, 28; Aug. 16, 19, 20.

MONTANA.

Eastern Slope of Rocky Mountains, Yellowstone Basin: ROSEBUD COUNTY. Station: CROW AGENCY.

F. E. SERVER, Observer.

[Established by Signal Service, December, 1878. Latitude, 45° 35' N. Longitude, 107° 28' W. Elevation, 3,041 feet.]

The early records of this station were made at Fort Custer, a few miles distant from Crow Agency, the topographic surroundings being similar to the present location. It was carried on as a regular station of the Signal Service from December, 1878, to January, 1883, and as a voluntary station by the post surgeon until 1897. The observations at Crow Agency proper were begun in October, 1897.

The station is near the center of town, which is situated on the west side of the Little Big Horn River, about 1 mile east of the foothills, and about 40 miles west of the Big Horn Mountains.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter on the north end of a low building. The thermometers are 7 feet above ground. The rain gage is exposed 100 feet north of the nearest building, the top being 4 feet above the ground.

The mean temperatures are obtained by dividing the sums of the mean maximum and mean minimum by 2. Frost record begins with 1888. Record from which the average number of days with minimum below 32°, and average number of days with 0.01 inch precipitation or more was computed, begins with 1880. Record from which average number of days with maximum above 90° was computed begins with 1883. Snow record begins with 1892. Record for wind direction begins with 1886.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 26	° F. 35	° F. 71	° F. 16	° F. -48	° F. 43	° F. 6	In. 0.6	6	In. 0.2	In. 0.0	In. 5.4	In. 6.0	S.
January.....	18	30	62	6	-45	29	2	0.7	6	0.2	0.2	6.6	8.0	SE.
February.....	19	30	68	7	-46	36	2	0.6	6	0.6	0.2	5.7	5.6	N., S. ^a
Winter mean.....	21	32		10				1.9	18	1.0	0.4	17.7		S.
March.....	32	44	76	20	-30	41	23	0.8	6	0.2	0.3	8.9	9.0	SE.
April.....	47	61	89	34	2	51	41	1.3	7	1.0	5.0	4.0	8.0	N.
May.....	56	71	96	42	18	64	52	2.2	9	1.6	3.3	0.9	7.0	NW.
Spring mean.....	45	59		32				4.3	22	2.8	8.6	13.8		SE.
June.....	64	78	107	50	31	70	53	2.6	10	0.9	7.5	0.0	0.0	NW.
July.....	71	87	110	56	37	76	66	1.3	6	0.8	5.0	0.0	0.0	N.
August.....	70	86	109	53	36	74	66	0.9	4	0.9	0.8	0.0	0.0	SE.
Summer mean.....	68	84		53				4.8	20	2.6	13.3	0.0		SE.
September.....	59	75	99	43	20	65	54	0.8	5	0.5	0.7	0.4	4.5	SE.
October.....	48	63	89	33	-15	55	42	1.1	5	0.5	0.4	2.5	7.0	SE.
November.....	32	46	78	19	-26	40	18	0.7	5	0.1	1.7	5.4	11.0	SW.
Fall mean.....	46	61		32				2.6	15	1.1	2.8	8.3		SE.
Annual mean.....	46	59	110	32	-48			13.6	75	7.5	25.1	39.8	11.0	

^a Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 95° or above.	Year.	Minimum below -20°.	Maximum 95° or above.
1894	Jan. 23; Feb. 11, 19-21; November and December missing.	July 11, 16, 21-25, 30, 31; Aug. 5, 10, 18, 20, 22, 23, 25-28.	1898	January, February, and March missing.	June 19; July 25; Aug. 20.
1895	Jan. 7, 8, 27, 28; Feb. 6-10, 12-16.	July 2-4, 15, 25, 27, 28, 31; Aug. 1, 4, 12, 13, 16, 21, 25.	1899	Feb. 1-7, 11, 12.....	July 20.
1896	Jan. 3, 4; March missing; Nov. 23-30.	June 30; July 1, 4-12, 17, 18; Aug. 2, 3, 20, 28, 30.	1900	Feb. 16.....	June 20-23, 25, 29; July 11, 17, 20, 30, 31; Aug. 1, 2.
1897	Jan. 25-28; Mar. 13; December missing.	June 14-16, 22; July 2, 13, 16, 17, 28, 29; Aug. 6, 7, 11, 12, 24, 25; Sept. 2, 6-8.	1901	Jan. 10; Feb. 5; Dec. 14.	July 6, 7, 12, 19, 21-23, 30, 31; Aug. 5, 16.
			1902	Jan. 26-29.....	July 15, 28, 31; Aug. 1.
			1903	Nov. 17, 18.....	July 21, 23, 24, 27; Aug. 16.

IDAHO.

By EDWARD L. WELLS,
Observer.

IDAHO.

In attempting to describe the climate of Idaho one is confronted by the fact that the greater portion of the State consists of mountain ranges and intervening valleys, extending in every conceivable direction, the mountains differing widely in height and form and the valleys showing as great variation in depression and extent, so that no general statement can be made which will apply to all districts or even to all parts of any one district. Of these mountain ranges the most important in their climatic influence are those comprising the divide which marks the northeastern boundary of the State, the Coeur d'Alenes, extending a short distance southeastward from the northern extremity of Shoshone County; the Bitter Roots, completing the northeastern boundary of Shoshone County and forming a portion of the eastern boundary of Idaho County, and a portion of the main range of the Rockies, which marks the northeastern boundary of Lemhi County and the northern boundary of Fremont County. This great divide constitutes a barrier against the approach of the cold waves which are prevalent on its eastern slope, for when high barometric pressure overlies Montana and the adjacent Canadian territory the cold outflowing winds in passing over these mountains first lose much of their moisture by condensation and are warmed by compression as they pass to lower levels. The moisture which these mountains extract from passing winds furnishes much of the water that maintains the flow of large streams through regions of scanty rainfall.

What has been said of these three ranges is, in a less degree, true of almost numberless smaller ranges scattered throughout the State, and it is largely because of the protecting influence of these mountain ranges that many of the valleys of the State possess a climate much milder than might be expected when latitude and elevation alone are considered.

For the purpose of climatic description the State may be divided into seven districts. The first of these includes that portion of the three mountain ranges mentioned lying within the State. These mountains, while they contribute in so great a degree to the mildness of the climate to be found in the valleys of the State, themselves possess a climate which, though usually pleasant in summer, is in winter apt to be quite severe. During the winter months snow frequently accumulates to great depths and temperatures below zero are of common occurrence. Killing frosts are likely to occur during the summer months, although the temperature rarely rises to 90°, even in the inhabited valleys among these mountains.

Adjacent to the district just described, comprising almost a third of the area of the State, lies what has been designated the central plateau region. This area includes several large valleys and many smaller ones. All of these valleys lie at considerable elevations, and they are separated from one another by irregular ranges of mountains, among which may be mentioned the Sawtooth Mountains, the highest in the State, some of which rise to a sufficient height to enable them to maintain a perpetual covering of snow. In this region periods of extreme cold are frequently experienced when temperatures of 30° or more below zero are recorded in the mountains, while in summer there are times when the daytime temperatures in the valleys are oppressively high. Here lie a number of comparatively level prairies, producing an abundance of wild grass and, in some sections, good crops of grain and domestic grasses. A considerable area is also under cultivation in some of the more sheltered valleys, though the danger of killing frost in the summer months and of extreme cold in winter prevents the successful growing of other than the most hardy crops. A very small area is irrigated, but in general such crops as are grown are dependent on rainfall. The low temperatures prevailing in this region, resulting in heavy precipitation of snow in winter and slow melting of this snow in spring, make it an ideal place of storage for the waters of several streams.

In the southeastern portion of the State lies what in this article is called the eastern plateau region, possessing in general the same topographical and climatic characteristics as the region just described, except that there are no extensive prairies included within the area, and a larger proportion is under successful cultivation, special attention being given to the growing of the small grains, alfalfa, potatoes, and sugar beets. A considerable area is irrigated, the remainder of the cultivated area constituting what is known as the "dry-farming" section.

Extending westward from the above-mentioned region, near the southern boundary of the State, is what may be termed the southern plateau region, possessing many of the characteristics of the central and eastern plateau regions, but lying in general at a less elevation, and therefore possessing a milder and drier climate. Much of this region is productive of nutritious native grasses, while in the valleys numerous tracts have been brought under irrigation, producing good crops of hay and grain, and some fruit, the period between the killing frosts of spring and those of autumn usually being of sufficient length to permit of the maturing of hardy varieties.

Lying between the central and eastern plateau regions is a rich and rapidly developing agricultural region comprising the upper Snake River valley. Much of this region is composed of level or slightly rolling land, a large proportion of which is irrigated and cultivated, producing large crops of wheat, oats, alfalfa, clover, potatoes, sugar beets, and some hardy fruits. In this region killing frosts occasionally cause some injury in May or June, but it is seldom that the yield of staple crops is materially reduced from this cause. Below zero temperatures are frequently experienced in winter, while in summer the temperature sometimes reaches 100°. There is usually sufficient precipitation in spring to cause germination of seed, and ordinarily enough water in irrigating canals during the summer to insure the maturing of crops.

The valley of the Snake River from above Shoshone Falls to the western boundary of the State, and the lower valleys of the tributaries reaching the Snake River between these points, comprise what are known as the "southwest" valleys. These valleys are mostly broad, those belonging to the tributaries being separated from one another by low mesas and foothills. Precipitation here is entirely insufficient for successful crop production, the cultivated area being limited by the capability of the irrigating canals to supply the needed moisture. In this region temperatures below zero are seldom experienced and very little snow falls. In summer daytime temperatures are high, and the nights are usually cool, and damaging frosts have been known to occur in June.

That portion of the State not included in the districts already described is usually spoken of as "northern Idaho," a district in which may be found a great variety of climate. Here rainfall is generally sufficient to produce crops without irrigation. In the lower valleys the temperature is exceptionally mild and killing frost in the crop season is almost unknown, while at greater elevations some snow falls in winter, and there is occasionally some damage from frost. The extreme northern end of the State is largely unsettled and is covered to a great extent by virgin timber. Here is to be found a moist climate, usually free from marked extremes of heat and cold, though occasionally characterized by periods of extreme cold, which do not extend to other portions of the State. While the season is ordinarily of sufficient length to render agricultural operations safe, killing frost has been known to occur in July and August.

High winds are of more or less frequent occurrence in exposed portions of the State, but are seldom destructive, and in many sheltered valleys are almost unknown. Hailstorms occur infrequently. Thunderstorms occasionally occur, being usually very light, but sometimes attaining a degree of violence in limited localities. The loss from lightning is very slight.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Ada.....	Boise.....	Southwest valleys..	817	Idaho (see Lewiston; Soldier).		Northern Idaho; central plateau.	
Bannock.....	Pocatello.....	Upper Snake River valley.	822	Kootenai (see Moscow).	Porthill.....	Northern Idaho.....	812
	Chesterfield.....	Eastern plateau.....	823	Latah.....	Moscow.....	do.....	814
Bear Lake (see Chesterfield).		do.....		Lemhi (see Lake; Soldier).		Rocky Mountains; central plateau.	
Bingham (see Chesterfield).	Blackfoot.....	Upper Snake River valley; eastern plateau.	819	Lincoln (see Soldier; Garnet).		Central plateau; southwest valleys.	
Blaine.....	Soldier.....	Central plateau.....	818	Nez Percés (see Moscow).		Northern Idaho.....	
Boise (see Soldier).		do.....		Oneida.....	American Falls.	Eastern plateau; upper Snake River valley.	821
Canyon.....	Payetta.....	Southwest valleys..	816				
Cassia (see Garnet).	Oakley.....	Southern plateau; southwest valleys.	824				
		Central plateau.....					
Custer (see Soldier).		do.....		Shoshone.....	Murray.....	Coeur d'Alene Mountains.	813
Elmore (see Soldier).	Garnet.....	Southwest valleys; central plateau.	820				
Fremont (see Blackfoot).	Lake.....	Rocky Mountains; upper Snake River valley.	815				

STATE SUMMARY.

Station.	Number.	Temperature.										Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.			
		° F.	° F.	° F.	° F.		° F.		° F.				
Porthill.....	1	44	56	33	100	—, 1899.....	-28	January, 1899.....	5	179			
Murray.....	2	43	55	32	99	June, 1896.....	-22	February, 1899.....	6	160			
Moscow.....	3	46	57	36	100	August, 1898.....	-17	do.....	8	122			
Lake.....	4	36	48	23	92	July, 1901.....	-38	do.....	0	222			
Payetta.....	5	52	68	36	110	August, 1894.....	-15	do.....	60	143			
Boise.....	6	51	63	40	107	July, 1896.....	-28	January, 1898.....	34	98			
Soldier.....	7	40	56	25	102	July, 1900.....	-37	February, 1903.....	17	219			
Blackfoot.....	8	46	60	31	108	June, 1900.....	-30	January, 1898.....	26	174			
Garnet.....	9	55	70	41	113	July, 1901.....	-5	January, 1902.....	76	99			
American Falls.....	10	46	60	33	106	August, 1893.....	-27	do.....	33	167			
Pocatello.....	11	48	59	37	102	July, 1901.....	-19	do.....	21	134			
Chesterfield.....	12	39	56	22	99	do.....	-34	January, 1895.....	7	257			
Oakley.....	13	48	62	34	108	July, 1893.....	-18	January, 1902.....	34	150			

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Porthill.....	1	Sept. 18	May 22	Aug. 29	July 9	Inches. 24.6	Inches. 4.7	Inches. 3.8	Inches. 8.1	Inches. 8.0
Murray.....	2	Sept. 17	May 30	Aug. 14	July 17	40.4	9.8	5.6	11.7	13.3
Moscow.....	3	Oct. 2	May 10	Sept. 6	May 30	23.6	5.9	2.9	6.6	8.2
Lake.....	4	Aug. 29	July 2	Aug. 15	July 27	16.4	4.4	2.2	3.3	6.5
Payetta.....	5	Sept. 26	May 10	Sept. 7	June 5	12.1	3.3	1.3	3.0	4.5
Boise.....	6	Oct. 24	May 3	Oct. 2	do.....	12.9	3.7	1.3	2.7	5.2
Soldier.....	7	Aug. 29	July 4	Aug. 5	July 26	13.2	3.4	1.1	3.5	5.2
Blackfoot.....	8	Sept. 12	May 29	Aug. 22	July 5	8.0	2.8	1.3	2.1	1.8
Garnet.....	9	Oct. 20	Apr. 22	Sept. 26	May 4	6.3	2.1	0.4	2.0	1.8
American Falls.....	10	Sept. 14	May 28	Sept. 3	July 1	12.4	4.1	1.5	3.1	3.7
Pocatello.....	11	Oct. 11	Apr. 10	Sept. 26	May 2	9.8	4.1	0.9	1.8	3.0
Chesterfield.....	12	Aug. 10	July 21	Aug. 1	July 30	10.8	3.8	1.7	2.4	2.9
Oakley.....	13	Sept. 7	June 5	Aug. 22	July 7	8.0	2.5	1.4	2.3	1.8

IDAHO.

Northern Idaho: KOOTENAI COUNTY. Station: PORTHILL.

H. A. FRENCH, Observer.

[Established by Weather Bureau in June, 1892. Latitude, 49° N. Longitude, 116° 35' W. Elevation, 1,665 feet.]

This station is located on the east bank of the Kootenai River at the International boundary line. The Kootenai at this place is 500 to 600 feet wide and 50 feet deep at low-water mark and flows in a northwesterly direction. The fall in the river between Bonners Ferry and Kootenai Lake, a distance of about 60 miles in a direct line following the general direction of the river, is about 3 feet. The Kootenai Valley, from 4 to 6 miles in width, and about one-half the area of the valley, is subject to annual overflow from the river during June and July. On either side of the valley rise mountains to elevations of about 4,500 to 5,500 feet above the station.

The station is equipped with standard maximum and minimum thermometers, rain gage, and instrument shelter. The instrument shelter is located on the northeast corner of the building. The thermometers are 4 feet above the sod. The rain gage is located on the southwest corner of the store, with no trees or fences near. Its top is 25 feet from the ground.

Mean temperatures have been computed from the readings of the maximum and minimum thermometers.

Tabulated data are for the period of observation, July 1, 1892, to December 31, 1903. The record is complete for the years 1894, 1897, 1900, 1902, and 1903 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	35	54	21	- 8	33	24	2.6	9	1.8	5.3	24.1	18.0	S.
January.....	23	30	50	15	-28	30	14	3.4	8	2.7	1.4	19.8	18.0	S.
February.....	27	36	54	17	-19	34	21	2.0	7	0.3	0.7	14.1	22.0	S.
Winter mean.....	26	34		18				8.0	24	4.8	7.4	58.0		S.
March.....	34	44	62	23	-12	36	30	1.5	6	2.7	4.5	11.7	8.0	N.
April.....	45	57	84	33	19	52	42	0.8	6	0.8	0.6	0.0	0.0	S.
May.....	54	67	94	41	23	64	50	2.4	9	0.8	1.2	0.0	0.0	S.
Spring mean.....	44	56		32				4.7	21	4.3	6.3	11.7		S.
June.....	60	72	91	47	29	64	54	1.6	9	1.4	1.2	0.0	0.0	S.
July.....	66	79	100	52	28	70	61	1.1	5	2.1	1.5	0.0	0.0	S.
August.....	64	79	100	50	31	73	57	1.1	6	1.8	0.6	0.0	0.0	SW.
Summer mean.....	63	77		50				3.8	20	5.3	3.3	0.0		S.
September.....	52	66	85	39	23	56	49	2.1	7	1.8	1.1	0.0	0.0	S.
October.....	45	60	78	31	15	50	41	2.1	7	0.7	6.9	0.0	0.0	S.
November.....	32	41	66	24	-20	39	26	3.9	12	3.1	4.8	22.6	14.0	S.
Fall mean.....	43	56		31				8.1	26	5.6	12.8	22.6		S.
Annual mean.....	44	56	100	33	-28			24.6	91	20.0	29.8	92.3	22.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FROM JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	None.....	July 21; Aug. 2.	1899	Jan. 1-8.....	July 10, 17-20; Aug. 5-7.
1895	.....do.....	May 18; June 29; July 23, 24, 29; Aug. 1-6.	1900	Feb. 7, 13-17; Nov. 19-21.	July 19-24, 28, 31; Aug. 1.
1896	Mar. 2; Nov. 27, 28....	July 4, 8-10; Aug. 13.	1901	None.....	July 23, 30.
1897	None.....	May 13-15, 30; June 20-22, 25; July 10-14, 27-29; Aug. 3-8, 10, 15-18, 22, 24, 28.	1902	Jan. 25, 27, 28.....	Aug. 6.
1900	.....do.....	May 11 (July incomplete; Aug. missing.)	1903	None.....	None.

IDAHO.

Cœur d'Alene Mountains: SHOSHONE COUNTY. Station: MURRAY.

ADAM AULBACH, Observer.

[Established by Weather Bureau 1893. Latitude, 47° 38' N. Longitude, 115° 52' W. Elevation, 3,000 feet.]

This station is located in the town of Murray, situated on the banks of Prichard Creek, which runs through a narrow valley walled in by mountains on either side. The valley extends from east to west, and at Murray is not over 700 feet in width. In the immediate neighborhood of the station the mountains rise to an elevation of 1,000 to 2,000 feet above the station, while 2 miles north is a peak rising 2,920 feet above the station. The Cœur d'Alene section is heavily forested.

The station is equipped with standard maximum and minimum thermometers and rain gage. The thermometers are mounted on the north end of a building about 6 feet from the ground, and no direct rays of the sun ever reach them. The rain gage is located on the ground, 12 feet from a building, and 10 feet from a high board fence 5 feet in height.

Mean temperatures are computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, NOVEMBER 6, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	28	33	52	22	— 6	32	22	4.6	16	5.0	5.3	32.3	12.0
January.....	26	32	50	20	—19	31	23	4.9	16	5.5	2.3	38.9	14.0
February.....	28	36	54	20	—22	33	21	3.8	14	2.2	4.2	29.0	10.0
Winter mean.....	27	34		21				13.3	46	12.7	11.8	100.2	
March.....	34	43	65	25	—11	41	28	3.6	15	1.4	8.4	31.3	15.0
April.....	43	55	78	31	16	48	40	2.6	11	1.1	2.4	2.8	4.0
May.....	51	64	91	37	24	57	46	3.6	13	4.1	1.2	0.1	1.0
Spring mean.....	43	54		31				9.8	39	6.6	12.0	34.2	
June.....	57	71	99	43	25	62	51	2.7	12	1.6	4.0	0.1	1.0
July.....	62	79	98	45	34	68	59	1.4	5	1.5	2.4	0.0	0.0
August.....	62	80	97	45	31	66	56	1.5	5	0.0	0.6	0.0	0.0
Summer mean.....	60	77		44				5.6	22	3.1	7.0	0.1	
September.....	52	66	90	38	24	55	48	2.7	10	4.3	2.2	0.0	0.0
October.....	44	57	77	32	18	48	41	2.5	10	0.3	1.3	T.	0.4
November.....	33	40	60	27	— 8	40	27	6.5	18	2.9	11.0	23.9	12.0
Fall mean.....	43	54		32				11.7	38	7.5	14.5	26.9	
Annual mean.....	43	55	99	32	—22			40.4	145	29.9	45.3	161.4	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 5; Feb. 10, 21....	June 2, 3; July 16, 19, 21, 23; Aug. 1-3, 17-26.	1898	None.....	June 18; July 10-13; Aug. 2, 6-11.
1895	None.....	July 23, 28; Aug. 2, 5, 6, 28; Sept. 1.	1899	Jan. 4-6; Feb. 3-6....	July 7, 16, 17.
1896	do.....	June 27-29; July 3-6, 8-11, 14-16; Aug. 15, 16, 28, 29.	1900	Feb. 16.....	July 21-24, 30, 31.
1897	Mar. 13.....	May 29; July 11; Aug. 9, 17-24.	1901	None.....	Aug. 14, 15, 23, 24.
			1902	Jan. 25, 27.....	None.
			1903	None.....	May 31; June 16; July 20-22; Aug. 18.

IDAHO.

Northern Idaho: LATAH COUNTY. Station: MOSCOW.

J. E. BONEBRIGHT, Observer.

[Established by United States Weather Bureau in 1892. Latitude, 46° 44' N. Longitude, 117° 01' W. Elevation, 2,560 feet.]

This station is situated in Paradise Valley in a portion of the Palouse country. The surrounding country is rolling hilly prairie. Lying 7 or 8 miles toward the northeast are the Moscow Mountains, extending northwest and southeast, and rising to an elevation of about 2,000 feet above the station; southeast of the station, at a distance of 3 or 4 miles, is a range of hills varying from 300 to 1,000 feet above the station, and extending in a southwesterly direction; Paradise Valley extends westward from the station. The instruments are situated on a hillside, about 150 feet south of the main building of the University of Idaho and about 50 feet below the crest of the hill. The thermometers are mounted in a standard cotton region instrument shelter supported 6 feet above the ground. The top of the rain gage is 2 feet above the ground. Temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	32	39	60	25	- 1	38	26	2.6	9	1.8	2.8	9.6	7.0	E.
January.....	29	36	56	22	- 12	36	23	3.0	11	2.1	4.3	16.0	6.0	E.
February.....	32	40	58	23	- 17	41	25	2.6	9	0.9	2.4	10.0	7.0	E.
Winter mean.....	31	38	.....	23	.....	.....	.....	8.2	29	4.8	9.5	35.6	.....	E.
March.....	37	46	68	28	0	44	31	1.8	8	1.2	1.6	6.4	5.0	W.
April.....	45	56	78	35	22	50	41	1.5	6	1.3	3.0	1.5	3.0	W.
May.....	53	65	92	41	27	60	47	2.6	8	2.2	2.1	0.4	2.4	W.
Spring mean.....	45	56	.....	35	.....	.....	.....	5.9	22	4.7	6.7	8.3	.....	W.
June.....	58	71	96	46	32	64	55	1.3	6	0.4	1.2	0.0	T.	W.
July.....	66	80	98	51	34	72	58	0.7	3	0.9	0.5	0.0	0.0	W.
August.....	65	81	100	50	30	70	58	0.9	4	0.3	2.4	0.0	0.0	W.
Summer mean.....	63	77	.....	49	.....	.....	.....	2.9	13	1.6	4.1	0.0	.....	W.
September.....	56	69	95	42	28	61	48	1.4	5	3.3	1.4	0.0	0.0	W.
October.....	48	61	80	37	11	54	42	1.7	6	T.	2.7	0.5	4.0	E.
November.....	37	45	67	28	- 14	44	31	3.5	10	1.8	4.1	8.0	12.5	W.
Fall mean.....	47	58	.....	36	.....	.....	.....	6.6	21	5.1	8.2	8.5	.....	W.
Annual mean.....	46	57	100	36	- 17	.....	.....	23.6	85	16.2	28.5	52.4	12.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	None.....	July 23; Aug. 1, 2, 18-23, 25-27.	1899	Jan. 3; Feb. 3-6.....	July 14-17.
1895	do.....	June 27; July 14, 23; Aug. 1, 10.	1900	None.....	July 11, 20-26, 29-31; Aug. 1-3.
1896	Nov. 27, 28.....	June 27, 28; July 4, 5, 9-11, 14-16; Aug. 15, 16, 18, 23, 29.	1901	do.....	July 30; Aug. 4, 5, 13-16, 22, 23.
1897	Jan. 25.....	May 26, 30, 31; July 12, 13, 24-26, 28, 29, 31; Aug. 1-3, 17, 18, 26.	1902	Jan. 25, 26.....	June 23; July 20; Aug. 6, 7, 21; Sept. 4.
1898	None.....	July 12, 13, 31; Aug. 1, 2, 6-13, 24-27; Sept. 17.	1903	None.....	May 31; Aug. 17, 18.

IDAHO.

Rocky Mountains: FREMONT COUNTY. Station: LAKE.

J. SHERWOOD, Observer.

[Established by United States Weather Bureau, June, 1892. Latitude, 44° 42' N. Longitude, 111° 22' W. Elevation, 6,700 feet.]

This station is located just northeast of Lake Henry, a body of water about 5 by 8 miles in extent, lying in a round valley nearly surrounded by high mountains. To the west, north, and east rises the main range of the Rockies to an elevation of about 3,300 feet above the station. The lake is drained by Henrys Fork, which runs from the south end of the lake in a southeasterly direction.

The station is equipped with a standard rain gage and with standard maximum and minimum thermometers, mounted in a cotton region instrument shelter, located on the north end of the observer's dwelling house. The rain gage is located on open ground, 10 feet from the nearest building, its top being 3 feet from the ground.

Mean temperatures are computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Snow.		
										Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	
December.....	18	27	46	9	-18	24	8	2.1	9	21.4	10.0	NW.
January.....	14	23	48	5	-34	26	3	2.6	9	26.0	10.0	NW.
February.....	13	23	46	3	-38	23	5	1.8	8	18.0	6.0	NW.
Winter mean.....	15	24		6				6.5	26	65.4		NW.
March.....	22	32	54	11	-24	32	14	2.1	8	20.7	8.0	SE.
April.....	33	44	66	22	-10	37	28	1.2	5	11.8	8.0	SE.
May.....	44	57	85	30	6	50	37	1.1	6	8.2	5.0	SE.
Spring mean.....	33	44		21				4.4	19	40.7		SE.
June.....	52	69	90	36	20	57	48	1.0	4	1.4	6.0	SE.
July.....	57	75	92	38	27	62	50	0.6	2	0.0	0.0	SE.
August.....	57	76	92	38	23	60	53	0.6	2	0.0	0.0	SE.
Summer mean.....	55	73		37				2.2	8	1.4		SE.
September.....	47	61	82	32	10	54	40	1.0	3	3.7	3.0	SE.
October.....	42	56	74	28	12	47	37	1.0	4	8.7	6.0	SE.
November.....	30	39	64	20	-31	38	16	1.3	6	12.8	5.0	SE.
Fall mean.....	40	52		27				3.3	13	25.2		SE.
Annual mean.....	36	48	92	23	-38			16.4	66	132.7	10.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 5-7, 19, 23, 24; Feb. 3-5, 11, 20-23; Mar. 5; Dec. 24-27.	None.	1899	Jan. 4-7; Feb. 1-7, 11, 23; Mar. 25.	None.
1895	Jan. 14, 25-28; Feb. 8-12, 14-16; Mar. 13; Nov. 20; Dec. 4, 22, 28.	Do.	1900	Feb. 16, 17; Nov. 20; Dec. 29.	July 31.
1896	Jan. 3, 12; Feb. 7; Mar. 2, 3, 13; Apr. 1; Nov. 24-28.	Do.	1901	Jan. 1, 11, 20, 30; Feb. 1, 2, 5, 9-11, 13; Mar. 28; Apr. 1; Dec. 19, 20.	Do.
1897	Jan. 2, 3, 7-10, 15, 23-26; Feb. 10, 11, 22, 23, 26; Mar. 12, 13, 22; Dec. 16, 20, 31.	Do.	1902	Jan. 23-28; Feb. 1, 2; Mar. 30; Nov. and Dec. missing.	None.
1898	Jan. 3, 21, 22, 24, 25; Feb. 16, 23; Mar. 20-22; Nov. 22; Dec. 3, 12, 13.	Do.	1903	Jan. 13-18; Feb. 3, 12, 13, 18; Mar. 1.	Do.

IDAHO.

Southwest Valleys: CANYON COUNTY. Station: PAYETTE.

F. B. DELANO, Observer.

[Established previous to 1892, exact date unknown. Latitude, 44° 05' N. Longitude, 116° 56' W. Elevation, 2,159 feet.]

This station is situated in the southeastern part of the village of Payette, on ground which slopes toward the northwest from the foothills back of the town to the Payette River, which empties into the Snake about 2 miles northwest of the station.

The station is furnished with maximum and minimum thermometers mounted in the regulation cotton-region shelter, together with a standard rain gage. The instruments are located in the observer's garden, about 60 feet south of his residence, and are free from the interference of trees and fences. The thermometers are 7 feet above sod. The top of the rain gage is 6 feet above ground.

Mean temperatures have been computed from readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	32	41	62	22	-6	36	25	1.4	5	1.0	2.6	5.6	12.0	W.
January.....	30	39	60	22	-13	36	22	1.6	7	2.1	1.6	8.5	8.2	W.
February.....	34	45	74	23	-15	44	23	1.5	6	0.3	2.0	5.1	9.0	S.
Winter mean.....	32	42	.....	22	.....	.....	.....	4.5	18	3.4	6.2	19.2	.....	W.
March.....	42	55	80	30	12	45	38	0.9	5	0.2	2.5	2.1	8.0	S.
April.....	52	69	95	35	16	61	49	1.0	5	0.8	0.7	0.1	0.5	S.
May.....	60	78	99	42	25	66	56	1.4	7	1.8	1.0	0.0	0.0	S.
Spring mean.....	51	67	.....	36	.....	.....	.....	3.3	17	2.8	4.2	2.2	.....	S.
June.....	67	86	103	48	27	72	63	0.6	3	0.2	1.0	0.0	0.0	S.
July.....	74	94	107	53	36	79	69	0.4	2	0.4	0.7	0.0	0.0	S.
August.....	73	94	110	52	35	78	66	0.3	2	0.2	0.1	0.0	0.0	S.
Summer mean.....	71	91	.....	51	.....	.....	.....	1.3	7	0.8	1.8	0.0	.....	S.
September.....	62	82	101	42	26	66	57	0.5	3	1.3	0.2	0.0	0.0	S.
October.....	52	71	96	33	16	57	47	1.0	4	0.0	0.6	0.0	0.0	W.
November.....	42	56	80	28	-6	46	36	1.5	7	0.2	1.0	3.7	6.0	SW.
Fall mean.....	52	70	.....	34	.....	.....	.....	3.0	14	1.5	1.8	3.7	.....	SW.
Annual mean.....	52	68	110	36	-15	.....	.....	12.1	56	8.5	14.0	25.1	12.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1894	Jan. 8; Feb. 22; Dec. 27.	June 16, 31; July 2, 7, 9, 14, 20-24, 30, 31; Aug. 1-3, 9, 11, 14-28, 30.	1899	Feb. 2-5; Dec. 18, 19...	June 16-18, 24; July 6-8, 10-21, 26-31; Aug. 2, 4-7; Sept. 11, 12.
1895	Jan. 27, 28; Feb. 13, 14; Dec. 21, 26, 28.	Apr. 28; June 26-30; July 1, 3, 10-14, 21-24, 26, 28, 31; Aug. 1-8, 12, 13, 15, 19, 24.	1900	None.....	June 3, 5, 12, 13, 18-23, 26, 28, 29; July 8-11, 14, 16-25, 28-31; Aug. 1, 2, 13, 14, 19, 20.
1896	Jan. 4, 5, 11, 12; Nov. 26-29.	June 15, 18, 26-29; July 3-26, 29, 31; Aug. 1, 10, 12, 15-18, 20-31; Sept. 16, 23; Oct. 1.	1901	.....Do.....	July 5-13, 15-31; Aug. 1-7, 9-18, 21-26, 28-31; Sept. 1.
1897	Jan. 25.....	May 14, 15, 20, 21, 23, 29; June 5-12, 29, 30; July 10-16, 18-20, 22, 23, 25-31; Aug. 1-24, 26, 27; Sept. 21.	1902	Jan. 25-28, 30, 31.....	May 28; June 8-10, 21-23; July 13-16, 18-31; Aug. 1-15, 19, 21-28, 30, 31; Sept. 1, 7-9.
1898	Jan. 23, 25, 27-31; Dec. 9-12, 22.	May 11, 26; June 7, 14, 16-19, 24, 25; July 1, 3-21, 23-31; Aug. 1-30; Sept. 6, 15, 17-19, 21.	1903	Jan. 30; Feb. 11-18....	May, June, July, and Aug. missing; Sept. 1-6.

IDAHO.

Southwest Valleys: ADA COUNTY. Station: BOISE.

EDWARD L. WELLS, Observer.

[Established by Signal Service July 1, 1877; discontinued June 30, 1890; reestablished by U. S. Weather Bureau December 1, 1898. Latitude, 43° 37' N. Longitude, 116° 8' W. Elevation, 2,707 feet.]

The station is about one-half mile northeast of the Boise River, on ground which slopes gradually toward the river from the foothills of the Boise Mountains, about 1 mile east of the station. Above and behind these foothills rise the Boise Mountains 2,300 feet to 3,400 feet above the station. Half a mile beyond the river to the southwest rises a mesa, locally known as the "second bench," about 75 feet above the station. Above the station the valley becomes much narrower, terminating in a canyon within about 8 miles. Below the station the distance between the foothills increases.

The thermometers are exposed in a standard shelter on the roof. The rain gage, photographic sunshine recorder, and anemometer are also located on the roof. The elevations of the instruments above the ground are as follows: Thermometers, 61 feet; rain gage, 51 feet; anemometer, 68 feet.

Tabulated data are from the following periods of observation: Monthly and annual temperature means, highest and lowest monthly means, means of maximum and minimum temperatures, number of days with 0.01 precipitation, snowfall, humidity, sunshine, wind direction, frost data, and miscellaneous phenomena from five years, December 1, 1898, to January 31, 1904. Remainder of data is from full period of observation, eighteen years, July 1, 1877, to June 30, 1890, and December 1, 1898, to January 31, 1904.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 33	° F. 40	° F. 62	° F. 25	° F. -7	° F. 38	° F. 26	In. 1.7	10	In. 0.7	In. 5.7	In. 4.5	In. 2.2	P. ct. 82	Gr. s. 1.59	P. ct. 73	Gr. s. 1.79	125	45	SE.
January.....	29	40	61	27	-28	38	18	1.9	12	2.5	1.8	5.8	4.8	84	1.24	72	1.46	96	33	SE.
February.....	34	41	65	25	-12	40	21	1.6	10	0.5	1.3	6.4	7.0	82	1.59	63	1.61	131	45	SE.
Winter mean.....	32	40	62	26	-13	39	21	5.2	32	3.7	8.8	16.7	.....	83	1.47	69	1.62	117	41	SE.
March.....	44	53	76	34	9	50	37	1.2	10	0.8	2.8	3.2	2.5	74	1.82	46	1.94	196	53	NW.
April.....	50	61	88	38	18	56	44	1.2	8	0.7	0.8	2.2	3.5	72	2.21	36	2.07	222	55	NW.
May.....	58	70	97	44	26	62	52	1.3	7	0.5	0.9	0.1	0.6	73	2.77	36	2.61	294	84	NW.
Spring mean.....	51	61	87	39	17	56	47	3.7	25	2.0	4.5	5.6	.....	73	2.27	39	2.21	237	57	NW.
June.....	66	80	103	52	30	71	60	0.9	3	0.4	3.4	0.0	0.0	66	3.09	32	3.09	354	76	NW.
July.....	73	88	107	56	40	75	69	0.2	1	0.1	0.6	0.0	0.0	54	2.80	21	2.93	405	87	NW.
August.....	72	86	105	55	39	76	66	0.2	8	0.1	0.1	0.0	0.0	56	2.91	26	3.21	384	82	NW.
Summer mean.....	70	85	105	54	36	74	68	1.3	7	0.6	4.1	0.0	.....	59	2.93	26	3.08	371	82	NW.
September.....	61	76	100	46	28	68	55	0.4	3	0.5	2.1	0.0	0.0	63	2.66	31	2.72	298	79	NW.
October.....	50	65	91	40	16	57	44	1.4	7	1.1	1.5	0.0	T.	73	2.08	45	2.58	216	63	NW.
November.....	40	53	72	34	6	47	32	0.9	11	1.5	0.1	2.2	1.7	76	1.87	63	2.15	129	41	SE.
Fall mean.....	50	65	88	40	16	57	44	2.7	21	3.1	3.7	2.2	.....	71	2.20	46	2.48	214	62	NW.
Annual mean.....	51	63	107	40	-28	57	44	12.9	85	9.4	24.1	24.5	7.0	72	2.22	45	2.35	235	61	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD DECEMBER 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1898	January and February missing.	None.	1901	None.....	July 6, 7, 17, 18, 20-25, 29-31; Aug. 1, 2, 4-7, 13-17, 22, 23.
1899	Feb. 3-6.....	June 16, 18, 24, 28; July 15-20, 24, 28, 29; Sept. 12.	1902	Jan. 25, 26, 28, 29.....	June 9, 22, 23; July 10, 14, 20, 21, 30; Aug. 7, 23.
1900	None.....	June 20, 21, 28; July 10, 11, 21-25, 29-31; Aug. 1.	1903	None.....	July 19-22; Aug. 5, 14, 18, 19; Sept. 4.

IDAHO.

Central Plateau Districts: BLAINE COUNTY. Station: SOLDIER.

W. Y. PERKINS, Observer.

[Established by United States Weather Bureau in 1894. Latitude, 43° 22' N. Longitude, 114° 48' W. Elevation, 5,200 feet.]

This station is located in the village of Soldier, on what is known as "Big Camas Prairie," near the Malad River. Camas Prairie is almost level, sloping only slightly toward the south. Malad River marks its southern boundary, and near this stream there is a ridge of lava or basalt mountains rising 1,000 to 2,000 feet above the level of the prairie. Toward the north rise the Sawtooth Mountains. The highest peaks in these mountains, near the station and in sight of it, are 5,000 to 6,000 feet above the station.

The station is equipped with standard maximum and minimum thermometers, mounted in a cotton-region instrument shelter, which stands about 10 feet from the nearest building, and a standard rain gage, mounted upon a post 40 feet from the nearest building. The gage is 6½ feet and the thermometers 4 feet from the ground.

Mean temperatures have been computed from daily extremes as recorded by maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	18	30	50	6	-29	24	12	1.7	7	0.4	1.8	15.3	8.0	W.
January.....	18	29	50	6	-33	26	7	2.3	8	1.1	7.8	20.4	11.5	W.
February.....	19	30	50	7	-37	27	4	1.2	7	0.3	0.7	16.5	17.0	W.
Winter mean.....	18	30		6				5.2	22	1.8	10.3	52.2		W.
March.....	26	39	65	14	-22	36	23	1.8	7	0.3	2.6	13.5	7.0	W.
April.....	39	51	79	27	0	44	35	0.7	5	0.3	0.8	2.6	3.1	W.
May.....	50	65	87	34	17	56	43	0.9	6	2.0	2.2	0.8	2.0	W.
Spring mean.....	38	52		25				3.4	18	2.6	5.6	16.9		W.
June.....	57	75	99	39	17	63	53	0.4	3	0.9	0.5	T.	T.	W.
July.....	64	85	102	43	25	68	61	0.5	3	1.1	0.9	0	T.	W.
August.....	64	85	100	42	24	66	57	0.2	2	0.3	0.5	0	T.	W.
Summer mean.....	62	82		41				1.1	■	2.3	1.9	T.		W.
September.....	53	73	92	33	16	55	51	0.4	2	T.	0.8	0.3	1.2	W.
October.....	44	61	82	27	9	50	40	1.0	4	0.5	0.3	1.6	5.5	W.
November.....	30	43	70	18	-33	37	24	2.1	9	2.3	4.8	12.7	11.0	W.
Fall mean.....	42	59		26				3.5	15	2.8	5.9	14.6		W.
Annual mean.....	40	56	102	25	-37			13.2	63	9.5	23.7	83.7	17.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FEBRUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	January missing; Feb. 3-5, 10, 11, 21-25; Mar. 22; November and December missing.	Record incomplete.	1899	Feb. 3-7; Dec. 18-21, 26, 29.	June 24; July 7, 9-11, 16-20, 24-26, 28, 29; Aug. 31.
1895	January and February missing; Dec. 18.	July 23, 24, 27, 29, 31; Aug. 3-5, 11, 13, 15, 17-21.	1900	Feb. 16, 17; Dec. 31...	June 20-25, 27-29; July 8-11, 20-26, 29-31; Aug. 1, 14, 27.
1896	Jan. 5, 13, 14, 30; Mar. 2; Nov. 27-30.	July 4, 5, 8, 10, 15, 16, 19, 21; Aug. 13-17.	1901	Jan. 1, 9, 10, 17, 18, 30; Feb. 1, 2, 4, 8-13; November missing; Dec. 12.	July 6, 7, 9-11, 15, 17-26, 29-31; Aug. 1-7, 12-14, 16, 17, 22, 23, 25, 29.
1897	Jan. 2, 4, 10, 18, 27; Feb. 10, 13, 18, 26; Mar. 13, 22; Dec. 16, 19-21, 23, 24, 31.	July 11-13, 15, 26-28; Aug. 4-11, 15-24, 29.	1902	Jan. 25-29; Feb. 3; Dec. 3, 13-16, 28-30.	June 9, 22, 23; July 10, 14, 20, 21, 23-25, 30; Aug. 2-7, 9, 23, 25.
1898	Jan. 1, 8, 10-13, 18, 21, 23-26, 28-31; Feb. 9, 10; Mar. 22; Dec. 3, 6-14, 16, 17, 23, 24.	June 15, 18; July 4, 8-11, 15, 27-31; Aug. 1-3, 8-17, 20, 24-26, 28.	1903	Jan. 12, 14-18; Feb. 1-3, 5-7, 12-16, 18-21, 26; Mar. 1, 7; Nov. 17; Dec. 22, 24-29.	July 11, 12, 19, 20, 22, 25; Aug. 5, 8, 14-19.

IDAHO.

Upper Snake River Valley: BINGHAM COUNTY. Station: BLACKFOOT.

GEORGE L. WALL, Observer.

[Established by United States Weather Bureau, October, 1895. Latitude, 43° 10' N. Longitude, 112° 22' W. Elevation, 4,503 feet.]

This station is located in the town of Blackfoot, near the confluence of the Blackfoot and Snake rivers. About 2 miles east of the station rise the foothills of the Blackfoot Mountains. Toward the west the ground slopes gently to the Snake River, about 1 mile distant. Mount Putnam, about 25 miles southeast of the station, has an elevation of about 10,500 feet.

The station is equipped with standard maximum and minimum thermometers, mounted in the regulation cotton-region shelter, and a standard rain gage.

Mean temperatures have been computed from daily extremes.

Tabulated data are for the period of observation, November 1, 1895, to December 31, 1903. The record is complete from 1897 to 1901 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.				Direction of prevailing wind	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Monthly mean.	Lowest monthly mean.	Number of days of 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
											Average depth.	Greatest depth in 24 hours.		
December.....	24	34	53	14	5	25	29	0.6	3	0.2	1.0	In.	In.	
January.....	24	34	53	14	5	25	29	0.6	3	0.2	1.0	In.	In.	
February.....	26	37	63	15	5	28	32	0.6	3	0.2	1.1	3.4	3.2	0.0
Winter mean.....	25	35	69	14	5	27	31	0.6	3	0.2	1.1	2.8	3.5	
March.....	35	47	79	30	13	41	45	0.4	2	0.3	2.3	9.4		
April.....	43	50	81	30	12	49	52	0.9	4	0.6	0.1	1.4	3.0	
May.....	55	71	95	39	10	61	64	1.5	4	0.8	0.6	2.6	10.0	
Spring mean.....	45	59	88	30	10	50	54	0.8	4	0.5	0.2	0.4	2.0	
June.....	64	83	108	46	24	74	80	0.3	10	1.6	0.9	4.4		
July.....	69	89	103	49	31	74	86	0.5	1	0.0	0.6	0.0	T.	
August.....	68	87	90	49	30	74	83	0.5	1	0.2	1.8	0.0	0.0	
Summer mean.....	67	86	99	48	30	74	83	0.5	2	0.6	0.5	0.0	0.0	
September.....	57	74	89	40	20	59	56	1.3	4	0.8	2.9	0.0		
October.....	45	60	80	31	15	51	41	0.2	1	0.5	0.7	0.0	0.0	
November.....	34	46	68	22	8	38	28	0.7	2	0.2	1.8	0.2	0.5	
Fall mean.....	45	60	79	31	15	51	41	0.7	8	T.	0.9	2.7	10.0	
Annual mean.....	46	60	108	31	30			2.1	11	0.7	3.4	2.9		
								8.0	35	5.1	9.5	16.7	10.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1896	Nov. 26-29.....	June 15, 29, 30; July 5-8, 10-12, 14, 16, 31; Aug. 1, 14-17, 30.	1900	Dec. 31.....	June 8, 12, 19-29; July 9-11, 22, 25, 28, 30, 31; Aug. 1, 15, 16.
1897	Jan. 17, 26, 27; Mar. 13.	May 28, 29; June 10-20, 21, 24, 30; July 1, 11, 12, 15, 16, 20, 21, 24, 25, 27, 28, 30; Aug. 3, 8, 9-11, 17, 24, 29.	1901	Jan. 1, 2.....	May 16, 17; June 21, 22; July 5-13, 15-26, 29-31; Aug. 1-7, 12-17, 23-27, 29.
1898	Jan. 11, 13-15, 23-29; Dec. 9, 12, 13.	June 17-19, 27; July 2-11, 13, 14, 19-22, 26-28; Aug. 6-8, 10-13, 18-21, 26, 27.	1902	Jan. 24-29; Feb. 1.....	May 12; June 8-10, 12, 21-25; July 10-17, 20-25, 27-31; Aug. 1-31; Sept. missing.
1899	Feb. 4-7; Dec. 20, 21..	June 16-19, 24, 25, 27, 28; July 1, 2, 6-11, 15, 17-21; Aug. 1, 9.	1903	Feb. 3, 5-7, 12-15.....	May 13; June 28; July 11-20, 27, 28, 30, 31; Aug. and Sept. missing.

IDAHO.

Southwest Valleys: ELMORE COUNTY. Station: GARNET.

GEORGE P. HALL, Observer.

[Established by U. S. Weather Bureau, November, 1899. Latitude, 42° 58' N. Longitude, 116° 0' W. Elevation, 2,575 feet.]

This station is located on the left bank of Snake River, in the extreme southwest corner of Elmore County, about 5 miles above the mouth of the Bruneau. At this place the canyon is about 500 feet in depth from the rim to the river and about 2,000 feet wide; near the top of the canyon wall the rock is perpendicular for 50 to 60 feet; below this the formation is of slanting, broken rock for several hundred feet, at the foot of which is a rolling sandy bench, on which the station is located.

The instrument shelter and rain gage are located about 50 feet from the nearest building and are unaffected by trees. The instruments in use consist of a standard rain gage and maximum and minimum thermometers mounted in a regulation cotton-region shelter. The thermometers, which have sod exposure, are 5 feet and the top of the rain gage is 3 feet above ground.

Mean temperatures have been computed from the daily extremes, as indicated by maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS DECEMBER 1, 1899, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	
December.....	35	45	61	25	7	37	33	0.6	3	0.4	0.2	NE.
January.....	35	44	60	26	- 5	40	31	0.7	3	1.1	0.9	E.
February.....	36	47	68	25	- 3	41	25	0.5	4	0.1	0.4	W.
Winter mean.....	35	45		25				1.8	10	1.6	1.5	E.
March.....	46	60	80	33	21	51	43	0.6	3	0.9	0.4	E.
April.....	53	69	87	38	24	55	51	0.8	4	0.7	2.0	W.
May.....	64	82	103	47	29	68	60	0.7	4	0.3	1.5	W.
Spring mean.....	54	70		39				2.1	11	1.9	3.9	W.
June.....	72	90	108	56	35	76	68	0.3	2	0.8	0.0	E.
July.....	78	97	113	59	43	83	75	0.0	0	T.	0.0	W.
August.....	78	96	110	60	40	82	76	0.1	1	T.	0.3	E.
Summer mean.....	76	94		58				0.4	3	0.8	0.3	E.
September.....	64	82	99	46	31	65	63	0.3	1	T.	0.7	W.
October.....	56	72	90	40	23	59	53	1.0	4	0.4	1.3	W.
November.....	44	55	79	32	16	47	41	0.7	5	1.1	0.6	E.
Fall mean.....	55	70		39				2.0	10	1.5	2.6	W.
Annual mean.....	55	70	113	41	- 5			6.3	34	5.8	8.3	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1900, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1900	None.....	May 8, 9, 15, 31; June 1, 2, 4, 7, 13, 19-29; July 7-31; Aug. incomplete; Sept. 4, 12.	1902	Jan. 26, 28, 29.....	May 12, 26-28; June 7-9, 12, 21-24; July 9, 11-15, 18-21, 23-31; Aug. 1-10, 14, 16, 21-29; Sept. 1-3, 6-11.
1901	do.....	May 13, 15-19; June 17-22, 27, 28; July 1, 2, 4-20, 22-31; Aug. 1-11, 13-17, 21-25, 29-31.	1903	Feb. 14.....	June 1, 7, 8, 15, 16, 25, 27; July 11-13, 15, 18-23, 25-27, 29; Aug. 1, 2, 5, 7-21, 28-30; Sept. 3, 4.

IDAHO.

Upper Snake River Valley: ONEIDA COUNTY. Station: AMERICAN FALLS.

WILLIAM A. BENNETT, Observer.

[Established by U. S. Weather Bureau, 1892. Latitude, 42° 47' N. Longitude, 112° 50' W. Elevation, 4,341 feet.]

This station is situated in the village of American Falls, on the east side of Snake River, not far from the falls from which the name is derived. East of the station rise rolling hills.

The station is furnished with maximum and minimum thermometers, mounted in a standard cotton-region instrument shelter, and a standard rain gage, all of which are situated in the yard of the observer. The thermometers are 4 feet from the sod and the top of the rain gage is 3 feet above the ground.

Tabulated data cover the period of observation December 1, 1892, to December 31, 1903. The record is complete for the years 1895, 1900, 1901, and 1903 only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	25	35	56	15	-19	31	17	1.4	5	1.6	0.9
January.....	26	34	55	16	-27	34	14	1.2	6	1.0	2.6
February.....	26	36	69	16	-22	34	14	1.1	5	0.4	0.6
Winter mean.....	26	35		16				3.7	16	3.0	4.1
March.....	35	45	72	25	-14	44	28	1.2	7	1.7	1.1
April.....	44	58	82	31	14	49	40	1.4	6	0.4	1.2
May.....	54	68	91	39	21	61	49	1.5	6	1.0	2.4
Spring mean.....	44	57		32				4.1	19	3.1	4.7
June.....	62	70	103	45	28	68	57	0.5	2	1.1	0.6
July.....	70	89	104	51	30	73	66	0.6	2	0.8	0.4
August.....	69	88	106	50	32	72	66	0.4	2	0.0	0.4
Summer mean.....	67	86		49				1.5	6	1.9	1.4
September.....	58	76	100	40	15	65	54	0.6	2	0.5	1.3
October.....	47	63	85	31	13	51	44	1.0	3	0.3	0.2
November.....	35	46	68	24	-27	47	32	1.5	5	0.5	1.2
Fall mean.....	47	62		32				3.1	10	1.3	2.7
Annual mean.....	46	60	106	33	-27			12.4	51	9.3	12.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 9; Feb. 3, 4, 21, 23, 24; Dec. 28.	May 27, 30; June 5; July 2-4, 6-10, 13-16, 18-25, 29, 30; Aug. 1-4, 14-17, 20, 21, 23-28.	1899	Feb. 5-7; Dec. 20.....	June 17, 18, 27-29; July 1, 6-11, 14-21, 24-28; Aug. 1-3, 11-13, 26-31; Sept. 1, 2, 10-13, 18-24, 26-28.
1895	Jan. 27-29; Feb. 11, 12, 14, 15.	June 22, 26-28, 30; July 1, 2, 13-16, 21-28, 30, 31; Aug. 1, 3-6, 11-20.	1900	Dec. 31.....	June 18, 20-29; July 7-11, 16, 17, 20-25, 29-31; Aug. 1, 13, 14, 27.
1896	Jan. 4; Nov. 27-29....	June 14-16, 26-30; July 3-12, 15-22, 25, 31; Aug. 1, 2, 12-17, 27 (September missing).	1901	None.....	July 5-11, 15-31; Aug. 2-4, 6-9, 12-14, 16, 17, 22-25, 29, 31.
1897	None.....	May 29, 30 (June missing); July 1, 10-12, 14-16, 21, 25-31; Aug. 3-7, 9, 10, 11, 15-24, 26, 27.	1902	Jan. 26-31; Feb. 1.....	(May missing) June 8, 9, 21-23, 25; July 10-14, 20-28, 30, 31; Aug. 1-9, 20, 23, 25, 26; Sept. 3.
1898	Jan. 11, 13, 14, 23, 25-28, 31; Dec. 9-13.	June 17-19, 29; July 4, 6-11, 13-16, 20, 21, 24-31; Aug. 1-4, 8-15, 17-20, 23-28; Sept. 18, 19.	1903	Feb. 1, 7, 13-15.....	June 25; July 11, 12, 15, 19, 20, 25-27, 30; Aug. 2, 5, 7-21, 29, 30; Sept. 3-5.

IDAHO.

Northern Plateau: BANNOCK COUNTY. Station: POCATELLO.

D. C. GRUNOW, Observer.

[Established by United States Weather Bureau, June, 1899. Latitude, 42° 52' N. Longitude, 112° 29' W. Elevation, 4,461 feet.]

This station is located about the center of the city of Pocatello, Idaho, near the middle of the gradual slope from the lowest point in the gateway to the valley between the Bannock Range of mountains on the southwest and the Port Neuf Range on the northeast, and about three-fourths of a mile from the foothills where the steep ascent to the summit of the Bannock Range commences. The foothills of the Port Neuf Range on the opposite side of the valley are about 1½ miles distant, and the summit of the range about the same distance farther on, the slope being more gradual than on the southwest side. The elevation of the hills on either side does not exceed 1,200 feet. To the north and northwest is practically open country, there being mountains on all other sides.

The standard instrument shelter is mounted 10 feet above a platform near the front of the building. The thermometers are 11 feet above the roof and 46 feet above the ground. The rain gage is located on a small platform about 20 feet south-east of the instrument shelter, 3 feet above the roof, and 37 feet above the ground.

Tabulated data are from the full period of observation, four and one-half years, July 1, 1899, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	° F. 29	° F. 37	° F. 57	° F. 22	° F. -15	° F. 31	° F. 27	In. 1.0	8	In. 1.6	In. 1.0	In. 6.6	In. 4.0	P.ct. 74	Gr. 0.91	P.ct. 69	Gr. 1.18	141	50	E.
January.....	28	36	54	21	-19	32	24	0.9	9	0.5	0.9	6.5	6.0	82	0.89	76	1.15	135	46	S.
February.....	28	36	54	20	-12	35	17	1.1	9	0.8	2.1	4.9	4.2	82	0.89	72	1.22	130	44	W.
Winter mean.....	28	36	.....	21	.....	.....	.....	3.0	26	2.9	4.0	18.0	.....	79	0.90	72	1.18	135	47	S.
March.....	38	47	68	29	9	44	35	0.8	10	0.9	0.8	5.7	6.6	77	1.19	56	1.48	202	55	SE.
April.....	45	55	76	34	18	46	44	2.0	10	0.5	2.4	6.2	6.0	72	1.64	56	1.45	214	53	W.
May.....	55	68	85	43	28	59	52	1.3	11	0.8	1.7	4.6	7.2	70	2.22	40	2.62	306	67	SE.
Spring mean.....	46	57	.....	35	.....	.....	.....	4.1	29	2.2	4.9	16.5	.....	73	1.68	51	1.85	241	58	SE.
June.....	65	78	97	51	35	70	60	0.4	11	0.2	0.6	0.0	0.0	58	2.28	30	2.72	352	69	W.
July.....	70	85	102	55	38	76	67	0.2	3	T.	0.3	0.0	0.0	51	2.48	26	2.52	381	82	SE.
August.....	70	85	96	55	38	73	68	0.3	5	0.2	0.2	0.0	0.0	50	2.19	24	2.62	347	86	SE.
Summer mean.....	68	83	.....	54	.....	.....	.....	0.9	11	0.4	1.1	0.0	.....	53	2.32	27	2.62	360	79	SE.
September.....	58	72	91	44	21	60	57	0.4	4	0.7	0.2	0.3	1.2	55	1.88	26	2.08	284	76	W.
October.....	51	64	83	38	20	53	48	0.5	6	0.6	0.1	T.	T.	64	1.57	40	1.81	238	69	SE.
November.....	39	49	66	29	4	42	36	0.9	9	0.7	1.1	6.3	8.2	69	1.17	59	1.56	152	52	SE.
Fall mean.....	49	62	.....	37	.....	.....	.....	1.8	19	2.0	1.4	6.6	.....	63	1.54	42	1.82	225	66	SE.
Annual mean.....	48	59	102	37	-19	.....	.....	9.8	85	7.5	11.4	41.1	8.2	67	1.61	48	1.87	240	62	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1900, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1900	Dec. 31.....	June 19-25, 27-29; July 8-11, 20, 21, 25, 29-31; Aug. 1.	1902	Jan. 27-29; Feb. 1.....	June 9, 22, 23; July 14, 20-22, 24, 25, 27, 30, 31; Aug. 1-7, 9; Sept. 2, 3.
1901	Jan. 1.....	July 2, 6-11, 15-31; Aug. 3, 4, 13, 14, 16, 23, 25.	1903	Feb. 13, 15.....	July 11, 12, 19, 20, 26; Aug. 5, 8, 10, 14-20.

IDAHO.

Eastern Plateau Districts: BANNOCK COUNTY. Station: CHESTERFIELD.

CHARLES S. WEST, Observer.

[Established by United States Weather Bureau, December, 1893. Latitude, 42° 51' N. Longitude, 111° 55' W. Elevation, 5,425 feet.]

This station is located in the upper Port Neuf Valley, a short distance east of the river of the same name. The valley itself is quite hilly, with mountains on either side. The highest mountain in the vicinity is Mount Putnam, 9 miles to the northwest and rising to a height of 5,000 feet above the station. The valley extends from north to south.

The station is equipped with standard maximum and minimum thermometers, mounted in the regulation cotton-region instrument shelter, and a standard rain gage. The instruments are located at a distance of about 50 feet from the dwelling house of the observer, with no trees or fences near them. The thermometers are 6½ feet above sod, while the rain gage is 3 feet above ground.

Mean temperatures have been computed from the readings of maximum and minimum thermometers.

The record for the years 1895, 1896, 1900, 1901, and 1903 is complete.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	19	32	48	6	-32	26	14	0.9	5	0.7	0.7	7.3	6.0	W.
January.....	20	32	49	8	-34	30	16	1.1	7	0.8	1.3	10.0	8.0	S.
February.....	19	33	51	6	-34	27	6	0.9	5	0.6	0.5	8.1	6.0	SW.
Winter mean.....	19	32		7				2.9	17	2.1	2.5	25.4		SW.
March.....	26	40	63	13	-27	35	20	1.0	5	0.6	2.0	7.1	6.0	SW.
April.....	40	55	79	26	0	44	38	1.1	6	0.5	1.1	4.6	6.0	SW.
May.....	48	65	86	32	8	52	43	1.7	8	2.3	2.5	3.8	8.0	SW.
Spring mean.....	38	53		24				3.8	19	3.4	5.6	15.5		SW.
June.....	56	77	96	36	19	61	52	0.6	2	0.8	0.4	0.1	0.5	SW.
July.....	59	83	99	37	18	63	53	0.5	3	0.8	0.9	0.0	0.0	W.
August.....	60	83	95	36	19	63	54	0.6	3	0.1	1.9	0.0	0.0	SW.
Summer mean.....	58	81		36				1.7	8	1.7	3.2	0.1		SW.
September.....	50	71	90	27	8	55	46	0.2	2	0.3	0.1	T.	T.	SW.
October.....	39	59	87	20	3	41	37	1.0	5	0.1	0.6	5.5	4.0	SW.
November.....	30	44	65	16	-26	34	24	1.2	6	0.4	3.2	4.0	8.0	SW.
Fall mean.....	40	58		21				2.4	13	0.8	3.9	9.5		SW.
Annual mean.....	39	56	99	22	-34			10.8	57	8.0	15.2	50.5	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Feb. 3; Dec. 13-16, 25, 26-28.	Record incomplete.	1899	(January, February, and March missing); December 18-21.	June 27; July 6, 9, 10, 18, 20.
1895	Jan. 7, 8, 15, 22, 24-29; Feb. 1, 10-12, 14, 15; Mar. 3; Dec. 4, 5, 19, 23-26, 29-31.	June 22, 26-28; July 1-3, 13, 15, 16, 23, 24; Aug. 2, 5, 6, 11, 12, 15, 18-21, 31.	1900	Jan. 1, 2; Feb. 12, 16-18; Dec. 10, 31.	June 19-23, 28, 29; July 10, 23, 25, 30, 31.
1896	Jan. 1, 2, 4-8, 12, 13; Feb. 7; Mar. 2, 15; Nov. 7, 27-30.	June 12-15, 28, 29; Aug. 12-15.	1901	Jan. 1, 30; Feb. 1, 2, 5, 9-13; Dec. 19-21.	July 1, 6, 7, 10, 11, 15-22, 24, 25, 29-31; Aug. 13, 14.
1897	Jan. 4, 14, 15, 18, 19, 26, 27; Feb. 17, 18, 23, 26, 27; Mar. 4, 13, 15-18, 21, 22. (November and December missing.)	(June and July missing): Aug. 7, 22, 23, 25, 29, 30.	1902	Jan. 25-30; Feb. 1; (November missing); Dec. 16, 17, 29, 30.	June 23; July 20, 21, 24; Aug. 1, 2, 6.
1898	(January missing; February incomplete); (November and December missing.)	(May to December missing.)	1903	Jan. 13-18; Feb. 1-7, 13-16, 18-22, 26, 28; Mar. 1, 2; Dec. 27-31.	July 12; Aug. 17-20.

IDAHO.

Southern Plateau Region: CASSIA COUNTY. Station: OAKLEY.

JOHN ADAMS, Observer.

[Established by United States Weather Bureau June, 1893. Latitude, 42° 14' N. Longitude, 113° 54' W. Elevation, 4,191 feet.]

This station is situated in the town of Oakley, which is located in the valley of Goose Creek, between two ranges of mountains, the range on the east rising to an elevation of 2,500 to 3,000 feet above the station, and that on the west being about 1,000 feet lower. Goose Creek flows northward, emptying into Snake River.

The station is equipped with standard maximum and minimum thermometers and rain gage. The thermometers are mounted in the regulation cotton-region shelter, and are 5 feet from the sod. The rain gage is located on open ground surrounded by trees at some little distance, its top being 3 feet above the ground.

Mean temperatures have been computed from the daily extremes, as indicated by the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	39	60	20	- 2	35	26	0.5	3	0.8	1.0	2.9	4.0	S.
January.....	30	39	63	20	-18	36	22	0.7	3	0.5	0.5	5.2	7.0	S.
February.....	30	41	64	20	-17	37	20	0.6	2	0.6	0.2	3.2	4.0	S.
Winter mean.....	30	40	.....	20	.....	.....	.....	1.8	8	1.9	1.7	11.3	.....	S.
March.....	37	48	76	26	7	44	34	0.8	3	0.5	0.1	4.0	6.0	S.
April.....	46	60	85	32	13	50	44	0.9	3	1.2	0.9	1.3	5.0	S.
May.....	54	70	99	39	23	61	49	0.8	3	0.1	0.9	0.7	4.0	S.
Spring mean.....	46	59	.....	32	.....	.....	.....	2.5	9	1.8	1.9	6.0	.....	S.
June.....	64	82	103	46	24	68	60	0.5	2	0.5	0.5	0.1	1.0	S.
July.....	71	90	108	53	31	76	66	0.4	2	0.6	0.8	0.0	0.0	S.
August.....	70	88	103	52	34	75	65	0.5	2	0.0	0.4	0.0	0.0	S.
Summer mean.....	68	87	.....	50	.....	.....	.....	1.4	6	1.1	1.7	0.1	.....	S.
September.....	59	76	100	41	23	64	54	0.7	2	0.3	1.2	0.1	1.0	S.
October.....	50	64	86	35	21	53	42	0.8	3	0.2	2.7	0.4	4.0	S.
November.....	38	50	70	27	-14	44	34	0.8	3	0.6	1.1	2.7	7.5	S.
Fall mean.....	49	63	.....	34	.....	.....	.....	2.3	8	1.1	5.0	3.2	.....	S.
Annual mean.....	48	62	108	34	-18	.....	.....	8.0	31	5.9	10.3	20.6	7.5	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Feb. 22-24; Dec. 26, 27.	July 7 9 10, 19-25, 28; Aug. 2, 3, 9, 13, 17, 22-27.	1899	Feb. 4-7; Dec. 19.....	June 16-18, 23, 24, 27-29; July 6-9, 17, 18, 20, 24, 29; Aug. 26; Sept. 11.
1895	Jan. 27-29; Feb. 11-13, 15; Dec. 22.	June 13; July 1, 23, 26, 28, 30; Aug. 3, 15, 18-20.	1900	Feb. 16.....	June 19-22, 24, 28, 29; July 7, 10, 11, 13, 16, 21, 24, 30, 31; Aug. 1.
1896	Nov. 27-30. (December missing.)	June 15, 28-30; July 4-6, 8-12, 16, 17, 20, 21, 25; Aug. 1, 15, 27.	1901	Jan. 1; Feb. 9.....	July 6-8, 10, 11, 14, 17, 18, 20-22, 24, 29-31; Aug. 4, 7, 13, 14, 26.
1897	Jan. 17, 18, 26, 27.....	May 28; June 12, 13; July 11, 12, 23, 26, 27; Aug. 4, 10, 11, 17, 19-24.	1902	Jan. 26-30; Feb. 1, 2..	May 26, 27; June 23; July 13, 14, 19-24, 30; Aug. 1-3, 6-10, 21; Sept. 3, 6.
1898	Jan. 11, 23-29; Dec. 10-12.	June 14, 17, 18, 27; July 3, 5, 7-10, 15, 16, 24, 25, 27; Aug. 9-13, 15, 20, 24-27; Sept. 18, 19.	1903	Feb. 2-4, 7, 13-15.....	June 25; July 12, 20; Aug. 5, 6, 10, 17-19; Sept. 21.

UTAH.

By ROBERT J. HYATT,
Local Forecaster.

UTAH.

The State lies entirely within that great plateau bounded on the east by the Rockies and on the west by the Sierras. It is crossed by several ranges of mountains, of which the principal one is the Wasatch. This range extends across the entire State from the north to the southwest and, roughly speaking, divides the main portion of the State into two parts, which present great variations in soil, climate, and topography. The region to the westward of the range is of inferior value as compared to other portions of the State. The precipitation is small and the streams are intermittent, depending in a great measure on melted snow for their supply of water. In this portion of the State are situated the Great Salt and Sevier deserts, the first-named formed from the recession of the waters of Great Salt Lake and the latter by the drying up of Sevier Lake. These are now great areas of barren soil of little value for cultivation. To the eastward of the Wasatch Range the surface is broken by innumerable spurs and transverse ranges of mountains, producing a surface contour of exceeding irregularity, high towering mountain peaks, some of them over 12,000 feet above sea level, alternating with deep, yawning chasms and gulches.

The mean altitude of the State above sea level is 6,100 feet, the cultivable valleys ranging in height from a little less than 3,000 feet in the extreme southwest to over 6,000 feet in the valleys of Summit County in the northeast. In a region where such a wide diversity of topography exists there must naturally be a wide range in the character of the climate, even of localities comparatively near to each other. In exposed localities extremely cold weather is often experienced, while the protected valleys near at hand enjoy a milder climate. In the extreme southeast lies the sparsely settled region along and beyond the Colorado River, where the soil is comparatively poor.

Temperature.—The mean temperature of the State is 48.5°, ranging from a mean of 58° in the extreme southern portion to 42° in the extreme north. In a State marked by such high altitudes extremely cold weather is experienced during the winter, the minimum temperatures falling considerably below the zero point in most localities, in extreme cases falling as low as 36° below. In summer, temperatures above the century mark are recorded, particularly in the extreme south, where 110° is reached. From these examples it can at once be seen that the State has a true continental climate, relieved to some extent by the modifying effect of Great Salt Lake on the climate of the valley of the same name. The first killing frosts usually happen during the first decade in September, though in the higher valleys of the State they may occur at any time. The last killing frosts in spring usually occur during the last week of May.

Precipitation. The State lies within the so-called arid belt, a fact which is shown by a consideration of the annual precipitation. The mean for the State is 11 inches, varying from 6 inches in the extreme south to 18 inches in the extreme northern portion. This applies, of course, only to regions under cultivation. The greater portion of the annual precipitation occurs in the form of snow during the winter, the dry period occurring in summer. During the periods of drought the air is exceedingly dry, extracting the moisture from the surface soil, and irrigation is essential in order to secure crops of all kinds.

Hail and thunder storms are not common, and seldom assume a destructive character. High winds, on the other hand are frequent, but instances of serious damage from these wind storms are rare.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Beaver (<i>see</i> Modena)		Southwestern		Rich (<i>see</i> Logan)		Northeastern	
Boxelder	Snowville	Northwestern	828	Salt Lake	Salt Lake	Northern	830
Cache	Logan	Northern	829	San Juan (<i>see</i> Hite)		Southeastern	
Carbon (<i>see</i> Levan)		Central		Sanpete (<i>see</i> Levan)		Central	
Davis (<i>see</i> Salt Lake)		Northern		Sevier (<i>see</i> Fillmore)		do	
Emery (<i>see</i> Loa)		Central		Summit (<i>see</i> Salt Lake)		Northeastern	
Garfield	Hite	Southern	838	Tooele (<i>see</i> Salt Lake)		Western	
Grand	Moab	Eastern	836	Uinta	Vernal	Eastern	832
Iron	Modena	Southwestern	837	Utah	Provo	Central	831
Juab	Levan	Western	833	Wasatch (<i>see</i> Provo)		do	
Kane (<i>see</i> St. George)		Southern		Washington	St. George	Southwestern	839
Millard	Fillmore	Western	834	Wayne	Loa	Southern	835
Morgan (<i>see</i> Salt Lake)		Northern		Weber (<i>see</i> Logan)		Northern	
Piute (<i>see</i> Loa)		Southern					

STATE SUMMARY.

Station.	Num- ber.	Temperature.										Average num- ber days with—	
		Mean an- nual.	Mean maxi- mum.	Mean mini- mum.	Abso- lute maxi- mum.	Date.	Abso- lute mini- mum.	Date.	Maxi- mum above 60°.	Mini- mum below 32°.			
° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.	° F.					
Snowville.....	1	46	60	31	102	July, 1901.....	-22	February, 1903.....	17	182			
Logan.....	2	47	59	38	100	do.....	-19	February, 1899.....	12	126			
Salt Lake City.....	3	52	62	41	102	July, 1889.....	-20	January, 1883.....	26	107			
Provo City.....	4	49	66	35	104	July, 1901.....	-18	February, 1903.....	47	143			
Vernal.....	5	46	62	33	100	do.....	-25	do.....	31	163			
Levan.....	6	47	62	33	101	do.....	-23	February, 1899.....	25	165			
Fillmore.....	7	51	69	35	112	do.....	-17	do.....	81	156			
Loa.....	8	42	61	21	110	do.....	-25	February, 1902.....	17	201			
Moab.....	9	54	71	38	107	June, 1899.....	-9	February, 1903.....	79	139			
Modena.....	10	49	63	33	98	July, 1901.....	-18	January, 1902.....	28	178			
Hite.....	11	60	75	45	115	do.....	-7	December, 1901.....	107	102			
St. George.....	12	59	77	37	114	June, 1900.....	-1	January, 1901.....	113	146			

Station.	Num- ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Inches.	Inches.	Inches.	Inches.	Inches.						
Snowville.....	1	Sept. 26	June 18	Sept. 7	July 8	10.6	3.8	1.2	2.5	3.1
Logan.....	2	Oct. 2	May 11	Sept. 4	June 6	14.1	5.8	1.5	3.4	3.4
Salt Lake City.....	3	Oct. 18	Apr. 23	Sept. 22	June 18	15.8	5.9	2.0	3.8	4.1
Provo City.....	4	Sept. 21	May 13	Sept. 9	June 2	10.9	3.9	0.9	2.2	3.9
Vernal.....	5	Oct. 3	May 4	Sept. 18	May 21	8.4	2.4	1.6	2.7	1.7
Levan.....	6	Sept. 30	May 20	Sept. 12	Nov. 1	15.2	5.3	1.9	3.4	4.6
Fillmore.....	7	Sept. 20	May 16	Aug. 23	June 14	14.5	5.1	2.0	2.7	3.7
Loa.....	8	Aug. 13	June 2	.....	.....	6.6	1.4	2.5	1.4	1.3
Moab.....	9	Oct. 2	Apr. 22	Sept. 13	May 4	7.5	1.8	1.4	2.3	2.0
Modena.....	10	.....	.....	Sept. 12	May 24	7.1	1.4	1.9	1.8	2.0
Hite.....	11	.....	.....	.....	.....	2.3	0.4	0.4	0.9	0.6
St. George.....	12	Oct. 7	May 3	Sept. 25	May 24	6.6	1.3	1.3	1.2	2.8

UTAH.

Middle Plateau: BOX ELDER COUNTY. Station: SNOWVILLE.

JOSEPH ROBBINS, Observer.

[Established in April, 1893. Latitude, 42° N. Longitude, 112° 40' W. Elevation, 4,300 feet.]

This station is situated in the midst of a rolling country in the extreme northern portion of the section.

The instruments, which are standard Weather Bureau maximum and minimum thermometers, are exposed in a shed fastened to the south side of a building, where they are freely exposed to the air. The bottom of the shelter is 4 feet above ground.

The rain gage is of standard pattern, well exposed some 12 feet from the nearest building, and rests on the ground. Monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	26	37	50	15	-8	40	11	1.0	3	0.1	2.1	6.8	N.
January.....	24	36	53	16	-21	35	14	1.2	5	0.7	1.7	6.0	E.
February.....	27	36	59	16	-22	35	13	0.9	4	0.8	1.0	6.4	S.
Winter mean.....	26	36		16				3.1	12	1.6	4.8	19.2	S.
March.....	36	44	68	25	-10	43	29	1.4	5	0.1	1.5	4.5	S.
April.....	46	59	77	31	4	57	42	1.2	5	3.5	1.4	2.0	S.
May.....	56	65	87	36	19	66	46	1.2	5	0.5	1.9	1.3	S.
Spring mean.....	46	56		31				3.8	15	4.1	4.8	7.8	S.
June.....	62	81	96	42	21	69	57	0.5	1	0.0	1.6	0.0	S.
July.....	69	88	102	49	30	75	64	0.4	1	0.0	0.6	0.0	S.
August.....	68	85	98	47	27	72	63	0.3	1	0.1	0.3	0.0	S.
Summer mean.....	66	85		46				1.2	4	0.1	2.5	0.0	S.
September.....	58	76	93	40	19	63	54	0.6	1	0.5	2.6	0.0	S.
October.....	48	64	87	32	10	56	42	1.1	5	0.9	0.1	2.0	S.
November.....	38	50	71	26	2	50	30	0.8	5	0.7	0.4	6.8	N.
Fall mean.....	48	63		33				2.5	11	2.1	3.1	8.8	S.
Annual mean.....	46	60	102	31	-22			10.6	32	7.9	15.2	35.8	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY, 1898, TO DECEMBER, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1898	None.....	Aug. 10, 11, 13.	1902	Jan. 26-30; Feb. 1, 2; Mar. 29; Dec. 3, 30.	July 23; Aug. 1.
1899	Feb. 4-7, 12; Dec. 12, 14, 19-21, 26-30.	July 20.	1903	Jan. 15-17, 29; Feb. 1, 3-7, 9, 12-22; Mar. 1, 2; Dec. 19, 25-30.	Aug. 17-19.
1900	None.....	July 8, 30, 31.			
1901	Jan. 1.....	July 7, 17-25, 27-31.			

UTAH.

Middle Plateau, Cache Valley: CACHE COUNTY. Station: LOGAN.

JAMES DRYDEN, Observer.

[Established January, 1891. Latitude, 41° 44' N. Longitude, 111° 52' W. Elevation, 4,507 feet.]

This station is connected with the Agricultural College and Experiment Station situated near the city of Logan, in the northern portion of the State. The college buildings are situated on the east bench some 200 feet above the center of the town.

The surrounding country consists of a valley about 30 miles long by 15 wide, almost entirely encircled by high mountain ranges, the college itself lying on the east side of this valley near the foot of the mountains at Logan River Canyon.

The shelter, which is of standard pattern, is situated about 40 feet northeast of the experiment station building, and about 50 feet from any trees or other obstructions, and contains the maximum and minimum thermometers of the usual Weather Bureau type. The base of the shelter is 3 feet above the ground.

The rain gage is about 100 feet from the shelter, and some 75 feet southwest of the experiment station building. It is well exposed with its base resting on the ground. The monthly mean temperatures were obtained from the daily extremes

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	26	35	55	21	-10	34	16	1.1	4	0.8	1.2
January.....	24	35	49	21	-12	30	14	1.1	5	1.2	0.9
February.....	26	32	56	20	-19	34	13	1.2	5	0.7	2.3
Winter mean.....	25	34		21				3.4	14	2.7	4.4
March.....	34	47	71	28	-3	45	26	1.8	8	1.9	2.8
April.....	48	57	76	36	17	52	43	1.8	5	0.9	1.7
May.....	55	67	84	44	25	61	51	2.2	6	1.4	0.6
Spring mean.....	46	57		36				5.8	19	4.1	5.1
June.....	63	79	95	52	30	70	60	0.6	2	0.6	0.6
July.....	71	86	100	57	37	77	68	0.4	2	0.6	0.7
August.....	70	84	94	57	35	75	66	0.5	3	0.7	0.2
Summer mean.....	68	83		55				1.5	7	1.9	1.5
September.....	55	74	90	47	29	65	58	1.1	2	0.0	1.3
October.....	50	61	81	39	24	54	46	1.2	4	2.6	2.6
November.....	38	48	67	30	5	43	31	1.1	4	1.3	2.4
Fall mean.....	48	61		39				3.4	10	3.9	6.3
Annual mean.....	47	59	100	38	-19			14.1	50	12.6	17.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1898	None.....	Aug. 14.	1902	Jan. 26, 30.....	None.
1899	Feb. 5-8; Dec. 19-21...	None.	1903	Feb. 4-7, 12, 16;	Aug. 17, 19.
1900	Dec. 31.....	June 20.		Mar. 1.	
1901	Jan. 1.....	July 7, 18-22, 29-31.			

UTAH.

Middle Plateau: SALT LAKE COUNTY. Station: SALT LAKE CITY.

R. J. HYATT, Section Director.

[Established by Signal Service March 1, 1874. Latitude, 40° 46' N. Longitude, 111° 54' W. Elevation, 4,292 feet.]

This station is situated in the city of Salt Lake. This city lies in the northeast corner of Salt Lake Valley, which immediately to the north and east is skirted by the Wasatch range of mountains, some of whose peaks within sight of the city, tower more than 10,000 feet above the level of the sea. The Oquirrh range, about 15 miles from the city, bounds the valley on the southwest. The country to the south is rolling, while to the west stretches a level plain, most of which has been recently uncovered by the receding waters of Great Salt Lake, which itself lies 13 miles beyond. This lake, while very shallow, occupies a vast superficial area, and for this reason exercises a modifying effect on the climate of the entire Salt Lake Valley.

The offices of the station are located on the sixth floor of the Dooly Block, one of the largest buildings in the city, and situated in the business center.

The thermometers and rain gage are well exposed on the roof where they are free from all obstructions, the building being one of the highest in the city. The nearest hills, which are some 1,000 feet higher, lie about 1 mile to the north.

The instruments are exposed at the following elevations above ground: Thermometers, 105 feet; top of rain gage, 97 feet; anemometer cups, 110 feet.

Tabulated data are from the following periods of observation: Humidity, fifteen years; sunshine, fourteen years, February 1, 1890, to December 31, 1903. Remainder of data is from the full period, thirty years, March 19, 1874, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.		
												Average depth.	Greatest depth in 24 hours.								
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Gr. s.	P. ct.	Gr. s.					
December.....	33	40	61	21	-10	40	25	1.4	9	0.4	2.0	9.7	10.0	73	1.35	70	1.60	128	44	SE.	
January.....	28	36	57	21	-20	36	21	1.3	10	3.1	3.0	11.3	6.0	77	1.19	73	1.48	128	43	SE.	
February.....	33	41	68	25	-13	41	20	1.4	10	2.0	0.8	10.8	11.0	74	1.37	66	1.56	131	44	SE.	
Winter mean.....	31	39	.....	22	.....	.....	.....	4.1	29	5.5	5.8	3.18	.....	75	1.30	70	1.55	129	44	SE.
March.....	42	50	77	32	0	49	34	1.9	10	1.1	2.8	8.6	8.0	65	1.54	53	1.81	193	52	NW.	
April.....	50	60	84	40	18	56	46	2.1	10	0.9	1.5	2.5	5.0	57	1.75	40	2.01	236	59	NW.	
May.....	58	69	93	47	25	63	51	1.9	8	0.2	2.9	0.5	5.9	57	2.41	37	2.51	288	64	NW.	
Spring mean.....	50	60	.....	40	.....	.....	.....	5.9	28	2.2	7.2	11.6	.....	60	1.90	43	2.11	239	58	NW.
June.....	67	79	101	55	33	74	62	0.7	4	0.3	0.9	T.	T.	48	2.67	28	2.62	355	79	NW.	
July.....	76	88	102	63	43	80	72	0.5	4	0.0	1.0	0.0	0.0	44	2.98	24	2.96	370	81	SE.	
August.....	75	87	101	62	44	78	70	0.8	5	0.8	0.2	0.0	0.0	44	2.98	26	3.12	329	77	SE.	
Summer mean.....	73	85	.....	60	.....	.....	.....	2.0	13	1.1	2.1	T.	.....	45	2.88	26	2.90	351	79	SE.
September.....	64	77	93	52	29	71	59	0.8	4	T.	1.2	T.	T.	47	2.36	30	2.55	296	79	SE.	
October.....	52	63	86	42	22	58	46	1.5	7	1.4	1.4	1.0	6.3	56	1.98	46	2.31	236	69	SE.	
November.....	40	49	74	32	-2	46	30	1.5	7	T.	5.8	5.8	9.7	65	1.66	59	1.94	165	55	SE.	
Fall mean.....	52	63	.....	42	.....	.....	.....	3.8	18	1.4	8.4	6.8	.....	56	2.00	45	2.27	232	68	SE.
Annual mean.....	52	62	102	41	-20	.....	.....	15.8	88	10.2	23.5	50.2	11.0	59	2.02	46	2.47	238	62	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6.....	July 8, 10; Aug. 3.	1900	.....do.....	June 20-22, 24, 25, 28, 29; July 8, 10, 11, 17, 30, 31.
1895	Jan. 28.....	July 24; Aug. 6, 17.	1901	.....do.....	July 6-8, 13, 15-22, 28-31; Aug. 13.
1896	None.....	July 11, 12, 21; Aug. 13-15.	1902	Jan. 26.....	June 9, 21-23; July 13-15, 28, 30, 31; Aug. 2.
1897	.....do.....	July 12, 27, 28; Aug. 11.	1903	Feb. 14-16.....	July 12, 13; Aug. 17, 19.
1898	Jan. 25-27; Feb. 4-6...	June 18; July 7, 9, 14, 15, 24, 25, 28, 29; Aug. 3, 11, 12, 18, 19, 26.			
1899	None.....	June 17, 29; July 9, 20, 24.			

UTAH.

Middle Plateau: UTAH COUNTY. Station: PROVO CITY.

CALEB TANNER, Observer.

[Established September, 1890. Latitude, 40° 14' N. Longitude, 111° 42' W. Elevation, 4,532 feet.]

This station is located in the northwestern part of the city of Provo, near the corner of Fifth north and Fourth west streets. This portion of the city, however, is sparsely built, making the location practically a country exposure. The city lies in a valley encircled by mountains of which the nearest to the station lie about 2 miles east, and tower 4,000 feet above it.

The instrument shelter is of standard pattern, and is situated 27 feet south of a one-story brick house, 45 feet east of a clump of trees, and 50 feet northeast of a barn 25 feet high. The base of the shelter above ground is 2.5 feet. In it are exposed the instruments, which consist of maximum and minimum thermometers of standard Weather Bureau pattern.

The rain gage is well exposed 6 feet south of the instrument shelter; the top is 3 feet above the ground. The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		
December.....	29	41	60	20	-6	35	22	1.5	7	NW.
January.....	27	42	60	22	-7	37	20	1.0	8	NW.
February.....	30	43	64	19	-18	37	17	1.4	10	NW.
Winter mean.....	29	42		20				3.9	25	NW.
March.....	39	55	79	29	7	44	35	1.3	9	NW.
April.....	49	64	84	34	19	54	46	1.1	7	NW.
May.....	58	75	90	40	28	65	54	1.5	5	NW.
Spring mean.....	49	65		34				3.9	21	NW.
June.....	64	84	102	47	32	69	57	0.5	2	W.
July.....	74	92	104	51	36	76	69	0.2	1	SE.
August.....	71	91	102	52	39	74	68	0.2	1	SW.
Summer mean.....	70	89		50				0.9	4	SE.
September.....	60	81	96	41	27	66	53	0.4	4	NW.
October.....	49	68	88	34	12	53	42	0.8	5	NW.
November.....	39	56	74	30	3	49	28	1.0	6	NW.
Fall mean.....	49	68		35				2.2	15	NW.
Annual mean.....	49	66	104	35	-18			10.9	65	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1898	None.....	June 16-20, 24, 27, 29; Aug. 1, 3-8, 10-31; Sept. 19, 20.	1902	Jan. 26, 29, 30; Feb. 2.	June 8, 10, 22-25; July 8-10-15, 21-25, 27, 28, 30; Aug. 1-7, 10, 12.
1899	Feb. 5-7; Dec. 20, 21.	Sept. 4, 12, 13.	1903	Jan. 30; Feb. 5-8, 13-19.	Aug. 6, 7, 15-20; Sept. 4.
1900	Dec. 30, 31.				
1901	Jan. 2, 10, 11; Dec. 13.	June 22; July 1, 6-8, 11-13, 15-22, 25, 27-31; Aug. 1-3, 4, 13, 14, 23.			

UTAH.

Middle Plateau: UINTAH COUNTY. Station: VERNAL

R. VELTMAN, Observer.

[Established January, 1895. Latitude, 40° 26' N. Longitude, 109° 33' W. Elevation, 5,050 feet.]

This station lies in a sparsely settled valley some 30 miles long by 10 wide, situated in the extreme eastern part of the State.

The instruments, which are the usual Weather Bureau maximum and minimum thermometers, are exposed in a shelter of standard pattern, attached to the north wall of a low office building. The thermometers are 5 feet above ground.

The rain gage is well situated some distance from the shelter, with its top 4 feet above the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1895, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	19	36	53	11	-13	28	12	0.4	4	0.5	1.2	3.2	NE.
January.....	19	33	48	11	-11	24	5	0.7	4	0.7	1.0	3.1	SE.
February.....	24	36	60	13	-25	32	10	0.6	6	1.4	1.1	5.7	NE.
Winter mean.....	21	35		12				1.7	14	2.6	3.3	12.0	NE.
March.....	35	50	68	21	-5	42	11	0.8	6	0.3	0.9	4.2	E.
April.....	48	63	83	33	15	51	46	0.7	5	0.3	0.6	0.8	SW.
May.....	58	74	90	42	28	62	55	0.9	5	0.9	0.6	0.0	W.
Spring mean.....	47	62		32				2.4	16	1.5	2.1	5.0	W.
June.....	66	85	99	50	34	71	61	0.3	4	0.2	0.2	0.0	SW.
July.....	72	89	100	55	36	76	68	0.7	4	0.2	1.1	0.0	SW.
August.....	70	87	99	53	38	73	67	0.6	6	0.7	0.3	0.0	W.
Summer mean.....	69	87		53				1.6	14	1.1	1.6	0.0	SW.
September.....	60	78	94	43	28	62	58	1.2	4	0.0	2.8	0.0	W.
October.....	48	65	85	34	14	54	44	0.9	4	0.4	2.3	0.0	W.
November.....	35	51	65	24	5	39	30	0.6	4	0.3	0.4	0.8	NW.
Fall mean.....	48	65		34				2.7	12	0.7	5.5	0.8	W.
Annual mean.....	46	62	100	33	-25			8.4	56	5.9	12.5	17.8	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1899	Feb. 5-7, 12; Dec. 18-29, 31.	None.	1902	Jan. 26, 27, 30, 31; Feb. 1-5; Dec. 17, 21-23, 28-31.	June 9, 10, 23, 25; July 13-15, 23-25, 30, 31; Aug. 1-3.
1900	Dec. 31.	June 20-22, 25-29; July 8-14, 17, 30; Aug. 1, 2.	1903	Jan. 1, 2, 15-18, 19; Feb. 4-10, 13-22; Mar. 1, 2.	June 28; July 12, 14; Aug. 6, 7, 19.
1901	Jan. 1-3; Feb. 10-15; Dec. 13, 14.	June 29; July 1, 12-23, 29-31; Aug. 1, 2.			

UTAH.

Middle Plateau: JUAB COUNTY. Station: LEVAN.

WILLIAM BROWN, Observer.

[Established January, 1890. Latitude, 39° 37' N. Longitude, 111° 56' W. Elevation, 5,010 feet.]

This station is in the extreme eastern part of Levan, which lies in a valley 7 miles wide, situated in the central portion of the State. The eastern boundary of this valley is formed by a spur of the Wasatch Range, which at this point is very rugged. The foothills of this range, as well as the range itself, are well wooded. The foothills to the west are low and rolling.

The instrument shelter is of standard pattern, and is fastened to the north wall of a building. The base of the shelter is 4 feet 4 inches above the ground. The instruments exposed therein are of the regular Weather Bureau type, and consist of maximum and minimum thermometers.

The rain gage is 30 feet from the building and at the same distance from a fence and about 35 feet from the shelter. The base of the gage is 10 inches above the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
December.....	° F. 25	° F. 37	° F. 56	° F. 15	° F. -12	° F. 32	° F. 21	In. 1.8	4	In. 0.2	In. 2.8	In. 11.0	N.
January.....	24	38	52	17	-11	32	16	1.6	6	0.9	1.7	8.4	N.
February.....	28	39	58	17	-23	34	14	1.5	8	0.7	1.5	9.9	SW.
Winter mean.....	26	38		16				4.6	18	1.8	6.0	29.3	N.
March.....	36	49	71	25	2	44	32	2.1	7	0.1	1.2	17.2	SW.
April.....	46	61	78	31	14	52	42	1.8	7	3.7	2.3	7.2	SW.
May.....	56	70	88	39	20	60	51	1.4	5	0.6	1.0	1.1	SW.
Spring mean.....	46	60		32				5.3	19	4.4	4.5	25.5	SW.
June.....	64	83	98	47	30	69	61	0.6	2	0.0	1.7	0.0	SW.
July.....	72	89	101	53	34	75	68	0.6	4	0.0	1.0	0.0	SW.
August.....	70	86	98	53	35	76	64	0.7	5	0.3	0.9	0.0	SW.
Summer mean.....	69	85		51				1.9	11	0.3	3.6	0.0	SW.
September.....	60	76	90	42	26	66	57	1.1	3	1.7	2.9	T.	SW.
October.....	47	63	85	34	20	51	44	1.3	4	0.7	0.8	0.7	SW.
November.....	37	51	66	26	8	40	33	1.0	4	1.4	0.0	4.4	SW.
Fall mean.....		63		34				3.4	11	3.8	3.7	5.1	SW.
Annual mean.....	47	62	101	33	-23			15.2	59	10.3	17.8	59.9	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1898	None.	July 8.	1901	Jan. 1, 2, 10, 11; Dec. 13, 16.	June 29; July 6-8, 17-22, 24-31; Aug. 1, 4.
1899	Feb. 4-6; Dec. 14, 19-21, 26.	June 18.	1902	Jan. 26-30.	Aug. 1, 2.
1900	None.	June 20, 21, 25-29; July 7, 8, 10-12, 17, 30; Aug. 1, 2.	1903	Jan. 30; Feb. 4-8, 13-18.	None.

UTAH.

Middle Plateau: MILLARD COUNTY. Station: FILLMORE.

J. J. STARLEY, Observer.

[Established April 1, 1892. Latitude, 38° 54' N. Longitude, 112° 20' W. Elevation, 5,100 feet.]

This station is in the western part of Fillmore, a town located on the eastern side of a valley in the central portion of the State. The foothills of the range of mountains to the east of the station lie some 2 miles away, while the range proper is distant from 7 to 10 miles.

The shelter is of homemade construction, and consists of a ventilated box, open at the bottom, and fastened on a post. The instruments exposed therein are standard Weather Bureau maximum and minimum thermometers. The shelter is situated about 20 feet southwest of a house and is raised about 6 feet above the ground.

The rain gage is of standard pattern, and is placed 15 feet from the shelter. The top of the rain gage is 6 feet above the ground. Monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December	29	45	65	17	-7	35	20	1.1	4	0.0	1.6
January	29	46	74	19	-15	34	16	1.2	4	1.2	2.2
February	33	47	69	16	-17	39	20	1.4	7	0.4	2.2
Winter mean	30	46		17				3.7	15	1.6	6.0
March	40	56	79	27	4	47	34	2.0	7	0.2	2.9
April	49	65	86	33	14	53	46	1.9	7	3.2	1.3
May	58	77	97	40	23	63	52	1.2	4	0.4	0.0
Spring mean	49	66		33				5.1	18	3.8	4.2
June	68	90	106	49	31	73	61	0.6	2	0.6	0.3
July	75	97	112	55	35	81	69	0.8	2	T.	0.2
August	74	94	105	55	32	78	68	0.6	4	0.1	0.3
Summer mean	72	94		53				2.0	8	0.7	0.8
September	65	85	102	44	29	72	62	0.9	2	1.6	1.5
October	52	71	90	35	20	56	47	0.8	4	0.9	3.6
November	41	59	81	27	9	46	41	1.0	3	0.7	1.2
Fall mean	53	72		35				2.7	9	3.2	6.3
Annual mean	51	69	112	35	-17			14.4	50	9.3	17.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1898		June 17-19, 27-30; July 3-10, 13-19, 21-31; Aug. 1-3, 8-20, 22-28; Sept. 13, 18, 19.	1902	Jan. 26, 27, 29, 30	June 7-12, 16, 18-27; July 9-15, 25-31; Aug. 1-9, 15, 16, 20-23, 26; Sept. 2-4, 6, 9, 10.
1899	Feb. 5-7; Dec. 14, 20, 21.	June 17, 18, 23, 25, 27-30; July 1-31; Aug. 25, 28, 31; Sept. 1, 2, 12.	1903	Jan. 30; Feb. 4-7, 13-19.	May 13; June 19, 21, 25-28; July 1, 10-14, 18, 19, 22, 26-30; Aug. 1-12, 14, 16-23, 29-31; Sept. 1-4.
1900	Dec. 31	May 26, 27; June 5, 18-22, 24-30; July 5-14, 16-21, 24-31; Aug. 1-3, 13-16, 26-29; Sept. 6, 12, 13.			
1901	Jan. 1, 10; Dec. 13	June 17, 18, 21-24, 27-30; July 1, 5-31; Aug. 1-7, 9-13, 15, 21-23, 31; Sept. 19.			

UTAH.

Middle Plateau: WAYNE COUNTY. Station: LOA.

MICHAEL HANSEN, Observer.

[Established January 1, 1892. Latitude, 38° 25' N. Longitude, 111° 40' W. Elevation, 7,000 feet.]

This station is in the central part of Loa, a town situated in a valley in the southern part of the State. This valley is almost surrounded by mountains, through which there is an outlet by way of a canyon a little east of north of the town and another opening at the extreme southern end of the valley.

The instruments are exposed in a box fastened on the north side of the post-office, 6 feet above the ground, and consist of standard Weather Bureau maximum and minimum thermometers. There are no trees near the shelter.

The rain gage, which rests on the ground, is well exposed in a large yard, some 80 feet from the nearest obstruction. The monthly mean temperatures are obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December	22	42	60	1	-25	27	14	0.3	1	0.2	0.1	2.6
January	22	39	55	3	-30	28	13	0.4	2	0.4	1.0	3.6
February	25	40	58	4	-35	30	7	0.6	2	0.3	1.8	3.4
Winter mean	23	40		3				1.3	5	0.9	2.9	9.6
March	31	47	68	13	-5	38	25	0.5	3	0.2	0.7	4.9
April	40	58	73	20	0	43	36	0.5	3	0.2	1.0	6.9
May	50	68	82	28	14	54	45	0.4	1	0.8	0.7	1.0
Spring mean	40	58		20				1.4	7	1.2	2.4	12.8
June	59	80	98	37	19	64	53	0.2	2	0.1	0.2	0.0
July	65	88	110	45	19	74	60	1.0	4	0.3	0.5	0.0
August	63	84	100	40	23	68	57	1.3	6	0.1	1.4	0.0
Summer mean	62	84		41				2.5	13	0.5	2.1	0.0
September	53	75	90	30	10	58	48	0.5	1	0.0	2.0	0.0
October	41	61	77	21	-1	45	38	0.5	2	0.4	1.8	T.
November	31	50	76	14	0	37	28	0.4	0	0.2	0.3	1.2
Fall mean	42	62		22				1.4	3	0.6	4.1	1.2
Annual mean	42	61	110	21	-35			6.6	28	3.2	11.5	23.6

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1898		July 14.	1902	Jan. 4, 9, 22, 23, 25-31; Feb. 1-4, 19, 27, 28; Mar. 6, 14, 15, 25, 29; Dec. 8, 14-17, 19-25, 27, 31.	
1899	Feb. 3, 5, 6, 17, 18; Mar. 10.	June 17, 27, 29.			
1900	Feb. 7, 9, 16; Oct. 29; Dec. 14, 17, 22, 23, 26- 28, 30, 31.		1903	Jan. 1-19, 28-31; Feb. 1-9, 12-20, 22-28; Mar. 18; Dec. 4, 7, 10, 14, 16, 17, 24-26, 29, 30.	June 27; July 1, 4, 9-29; Aug. 1-8, 10, 18.
1901	Jan. 1, 2, 8-10, 13, 16- 19, 24-26, 29-31; Feb. 2, 4, 7-14; Mar. 13, 24; Apr. 7; Nov. 11; Dec. 7, 8, 11-16, 21, 26, 28, 29.	July 20.			

UTAH.

Middle Plateau: GRAND COUNTY. Station: MOAB.

HENRY CROUSE, Observer.

[Established in October, 1889. Latitude, 38° 33' N. Longitude, 104° 31' W. Elevation, 4,000 feet.]

This station is near the center of Moab, a town situated in a small valley in the extreme eastern part of the State. This valley is partly surrounded by high, almost perpendicular mountains that form its northern and southern boundaries. The station itself lies about 2 miles east of the Grand River.

The shelter is of standard pattern, located 30 feet west of a stone building, 10 feet in height. The base of the shelter is 5 feet above the ground. The thermometers exposed in the shelter are of the usual Weather Bureau maximum and minimum type.

The rain gage is placed 90 feet from the shelter. The nearest tree is 60 feet away. The top of the gage is 5 feet 6 inches above the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	31	43	68	17	3	43	22	0.8	2	0.2	1.7	2.5
January.....	29	44	59	17	2	35	22	0.6	2	0.8	1.2	2.1
February.....	36	49	69	21	- 9	40	24	0.6	3	0.1	2.1	2.1
Winter mean.....	32	45		18				2.0	7	1.1	5.0	6.7
March.....	46	62	81	31	14	51	42	0.8	5	0.4	2.2	0.9
April.....	55	72	90	37	23	60	46	0.4	6	0.3	0.7	T.
May.....	65	81	95	46	29	69	62	0.6	3	1.6	0.4	0.3
Spring mean.....	55	72		38				1.8	14	2.3	3.3	1.2
June.....	72	92	107	53	38	75	69	0.2	5	0.2	0.1	0.0
July.....	78	96	104	58	43	83	74	0.5	4	0.2	0.8	0.0
August.....	75	94	105	57	42	78	72	0.7	4	0.3	0.6	0.0
Summer mean.....	75	94		56				1.4	13	0.7	1.5	0.0
September.....	66	85	99	47	32	69	63	1.1	4	0.0	1.5	0.0
October.....	53	72	88	39	20	57	49	0.6	3	T.	2.5	0.0
November.....	41	59	75	29	10	45	37	0.6	3	0.2	0.5	T.
Fall mean.....	53	72		38				2.3	10	0.2	4.5	T.
Annual mean.....	54	71	107	38	- 9			7.5	11	4.3	14.3	7.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1898	None.....	June 17-21, 27-30; July 9, 13-15, 22-31; Aug. 1-3, 6, 11-19, 21, 24-30.	1901	None.....	June 6, 20-24, 27-30; July 1-8, 10-31; Aug. 1-4, 6, 10-14, 26.
1899	Feb. 6, 7.....	May 11; June 8-12, 15-25, 27-30; July 1, 4-10, 12-16, 18-27, 29-31; Aug. 10, 11, 14, 15, 25-29, 31; Sept. 1-5, 13.	1902	.....do.....	June 4-10, 13, 16-19, 21-27, 30; July 10-16, 20-25, 27-31; Aug. 1-9, 15, 16, 19-21; Sept. 4, 7.
1900	None.....	May 26, 27, 31; June 7, 19, 20, 22-30; July 1, 5-14, 17, 18, 21, 24-31; Aug. 1-3, 6-9, 12-16, 26-30.	1903	Feb. 7, 13-17.....	June 26-30; July 1, 5, 8-14, 19, 20, 25-30; Aug. 3-11, 13, 14, 16-24, 30, 31; Sept. 1.

UTAH.

Middle Plateau, Rocky Mountain Slope: IRON COUNTY. Station: MODENA.

H. MCP. BALDWIN, Observer.

[Established by United States Weather Bureau January, 1901. Latitude, 37° 48' N. Longitude, 113° 54' W. Elevation, 5,472 feet.]

This station is near the southwestern limits of the village of Modena, in the Escalante Valley, which is encompassed by mountains varying in height from 500 to perhaps 5,000 feet. The mountains are from 1 to 2 miles distant from the station.

The thermometers are exposed in a shelter located on the ground, about 100 feet southwest of the station. The elevation of the dry bulb thermometer above the ground is 10 feet.

The rain gage is located on the ground, 25 feet north of the shelter and 75 feet southwest of the station. The top of the gage is 2 feet 10 inches above the ground. There are no trees in the vicinity of the gage.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1901, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 29	° F. 43	° F. 63	° F. 16	° F. - 3	° F. 30	° F. 28	In. 0.1	2	0.0	0.3	In. 2.0	In. 3.6	P. ct. 71	Gr. 0.87	P. ct. 53	Gr. 1.16	228	77	W.
January.....	30	43	60	17	-18	32	27	0.3	5	0.1	0.4	2.1	1.8	73	0.94	51	1.21	192	63	W.
February.....	26	39	65	14	-17	35	15	1.6	7	0.3	3.6	14.6	12.1	76	0.90	61	1.41	230	76	W.
Winter mean.....	28	42	.....	16	.....	.....	.....	2.0	14	0.4	4.3	18.7	.....	73	0.89	55	1.26	217	72	W.
March.....	36	49	68	23	8	38	34	0.4	9	0.1	0.7	4.8	8.4	71	1.22	39	1.33	205	55	W.
April.....	45	61	76	30	15	47	44	0.5	4	0.1	0.7	2.9	0.6	60	1.32	23	1.16	278	70	SW.
May.....	54	71	85	38	26	56	53	0.5	5	0.2	0.6	0.2	0.4	50	1.48	23	1.61	313	71	W.
Spring mean.....	45	60	.....	30	.....	.....	.....	1.4	18	0.4	2.0	7.9	.....	60	1.34	28	1.37	265	65	W.
June.....	66	83	98	48	31	68	64	0.2	3	0.0	0.3	0.0	0.0	38	1.60	15	1.59	362	82	SW.
July.....	70	88	98	53	31	74	68	0.5	3	T.	1.3	0.0	0.0	38	1.84	22	2.62	380	84	SW.
August.....	70	87	97	54	41	72	69	1.2	7	0.9	1.6	0.0	0.0	49	2.46	27	3.05	347	82	SW.
Summer mean.....	69	86	.....	52	.....	.....	.....	1.9	13	0.9	3.2	0.0	.....	42	1.97	21	2.42	341	83	SW.
September.....	57	77	92	43	28	62	59	0.8	4	0.1	1.5	0.0	0.0	46	1.57	21	1.83	302	81	W.
October.....	51	67	78	34	17	52	50	0.7	3	0.0	1.4	0.0	0.0	53	1.35	27	1.60	290	83	W.
November.....	59	53	68	25	3	42	35	0.3	2	0.0	0.9	2.3	3.5	66	1.17	42	1.43	227	75	W.
Fall mean.....	56	66	.....	34	.....	.....	.....	1.8	9	0.1	3.8	2.3	.....	55	1.36	30	1.62	273	80	W.
Annual mean.....	49	63	98	33	-18	.....	.....	7.1	54	1.8	13.3	28.9	12.1	58	1.39	34	1.67	279	75	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1901, TO DECEMBER 31, 1903.

Year.	Minimum below 0.	Maximum 95° or above.	Year.	Minimum below 0.	Maximum 95° or above.
1901	Jan. 1, 2; Feb. 8, 12, 13; Dec. 12, 13.	June 28, 29; July 6, 7, 12, 18-20, 26, 29.	1903	Feb. 3-7, 9, 10, 12, 13, 15-18.	
1902	Jan. 26, 27, 29, 30; Feb. 3.	June 23, 24; July 24; Aug. 1, 2, 30.			

UTAH.

Middle Plateau: GARFIELD COUNTY. Station: HITE.

F. W. GIBBONS, Observer.

[Established March 1, 1900. Latitude, 37° 52' N. Longitude, 110° 18' W. Elevation, 3,000 feet.]

This station is a true country location, being situated in a sparsely settled region where there are few houses, none of which are near the station. It is situated near the Colorado River, which at this point is banked on either side by low hills that run back to high perpendicular bluffs. The nearest hill to the station lies 200 feet away.

The instrument shelter is of home construction, and is situated 75 feet from the nearest house. There are no trees or other obstructions in the vicinity. The base of the shelter is 5 feet above the ground. The instruments exposed therein consist of maximum and minimum thermometers of standard Weather Bureau pattern.

The rain gage is placed 10 feet from the shelter; its top is 7 feet above the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, MARCH 1, 1900, TO DECEMBER 31, 1903.

Month.	Temperature.							Mean Precipitation.
	Mean.	Mean of the maxi- ma.	Absolute maxi- mum.	Mean of the mini- ma.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.
December.....	36	48	66	23	7	38	33	0.1
January.....	36	48	60	23	9	37	34	0.2
February.....	40	53	72	28	11	45	32	0.3
Winter mean.....	38	50		25				0.6
March.....	50	64	76	35	18	53	47	T.
April.....	59	74	91	44	28	61	57	0.1
May.....	72	86	98	55	41	73	67	0.3
Spring mean.....	60	75		45				0.4
June.....	80	98	109	64	50	83	77	T.
July.....	86	101	115	69	44	90	80	T.
August.....	82	98	110	68	56	86	80	0.4
Summer mean.....	83	99		67				0.4
September.....	72	89	102	55	42	73	70	0.3
October.....	61	78	91	44	32	62	61	T.
November.....	48	62	76	34	20	48	48	0.6
Fall mean.....	60	76		44				0.9
Annual mean.....	60	75	115	45	7			2.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD MARCH 1, 1900, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1900		May 9, 26-31; June 1, 2, 4-7, 12, 13, 15, 17-30; July 1-31; Aug. 1-3, 6-9, 12-16, 26-30; Sept. 3, 5.	1902	January, missing.....	May 25, 28; June 4-27; July 7, 8-16, 18-31; Aug. 1-10, 12, 15, 17, 19-21, 25, 26; Sept. 1-10, 12-14.
1901	November and December, missing.	May 9-11, 13, 17-20; July 1-31; Aug. 1-17, 21-29, 31; Sept. 1, 2, 15, 19.	1903	None.....	May 13; June 17-30; July 1, 2, 6-15, 18-21, 24-31; Aug. 1-26, 29, 31.

UTAH.

Middle Plateau: WASHINGTON COUNTY. Station: ST. GEORGE.

JAMES G. BLEAK, Observer.

[Established January, 1890. Latitude, 37° 6' N. Longitude, 113° 35' W. Elevation, 2,890 feet.]

This station is in the southern part of St. George, a town located in a valley in the extreme southern portion of the State. This valley lies between two volcanic ridges that run from north to south. To the north of the town lies a red sandstone bluff, while to the south flows the Rio Virgen.

The shelter, which is of standard pattern, is situated 85 feet from the nearest building and 80 feet from the nearest trees. The base of the shelter is 4 feet 3 inches above the ground. In this shelter are exposed the maximum and minimum thermometers, which are of standard Weather Bureau pattern.

The rain gage is situated 7 feet 6 inches from the shelter and some 80 feet from the nearest obstruction. The top of the gage is 4 feet 6 inches above the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	
December.....	38	55	71	17	5	43	32	0.9	1	1.9	0.4	SE.
January.....	36	56	70	19	-1	41	30	1.0	3	0.2	2.7	SW.
February.....	41	57	77	22	1	44	32	0.9	4	0.4	2.4	SW.
Winter mean.....	38	56		19				2.8	8	2.5	5.5	SW.
March.....	48	67	86	28	12	53	41	0.6	5	0.2	1.0	SW.
April.....	56	76	94	36	24	63	51	0.3	5	0.0	0.1	SW.
May.....	68	86	100	44	20	80	60	0.4	2	0.0	0.2	SW.
Spring mean.....	57	76		36				1.3	12	0.2	1.3	SW.
June.....	77	97	114	52	15	85	70	0.1	1	0.0	0.0	SW.
July.....	82	101	111	58	41	87	76	0.5	2	0.3	0.3	SW.
August.....	81	98	110	54	43	84	73	0.7	5	0.5	0.4	SW.
Summer mean.....	80	99		55				1.3	8	0.8	0.7	SW.
September.....	72	91	103	46	31	77	64	0.4	2	0.0	1.0	SW.
October.....	60	79	93	38	20	64	55	0.4	3	0.1	1.2	SW.
November.....	47	65	80	27	17	51	41	0.4	3	0.0	0.1	SW.
Fall mean.....	60	78		37				1.2	8	0.1	2.3	SW.
Annual mean.....	59	77	114	37	-1			6.6	36	3.6	9.8	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1898	None.....	Apr. 24-26; June 6-9, 12, 13, 15-21, 24-30; July 1-10, 12-31; Aug. 1-3, 5-23, 23-26, 28, 31; Sept. 4-10, 12-20, 23, 24, 26, 30.	1902	None.....	May 25, 28, 29; June 6, 8-10, 12-30; July 1, 7-15, 17-25, 27-31; Aug. 1-8, 10, 12, 13, 16, 19-21, 23-26, 28, 31; Sept. 1-12, 14, 19.
1899		June 7-12, 15-25, 27-30; July 1-31; Aug. 9, 10, 12-15, 24-28, 30, 31; Sept. 1-5, 8-13, 18-25, 28-30.	1903	do.....	May 7, 12-14, 30, 31; June 1, 3, 4, 6, 8-10, 14, 15, 17-30; July 1-3, 5-21, 25-31; Aug. 1-19, 21-25, 28-31; Sept. 1-6.
1900	None.....	May 26-31; June 1, 2, 4-7, 12, 13, 17-30; July 1, 4-19, 22-31; Aug. 1-10, 12-17, 25-31; Sept. 1, 6-8.			
1901	Jan. 2.....	May 16-18; June 6, 16-18, 20-24, 26-30; July 1-31; Aug. 1-10, 21-31; Sept. 1, 8, 9, 13, 15-19.			

WYOMING.

By WALTER S. PALMER,
Section Director.

WYOMING.

The State of Wyoming embraces the territory bounded by the forty-first and forty-fifth parallels of north latitude and the twenty-seventh and thirty-fourth meridians west from Washington, and has an area of 97,890 square miles. The surface of the State consists, in general, of a vast undulating plateau, the greater part of which is from 5,000 to 8,000 feet above sea level. This plateau is broken by several detached mountain ranges, the general trend of which is from northwest to southeast, these detached ranges forming, as a whole, a portion of the main chain of the Rocky Mountains. Some of the detached ranges do not follow the general trend of the Rockies, thus adding peculiar topographical features, which are reflected in the climatic features of some sections of the State. The lowest portion of the State is but slightly below 3,500 feet above sea level, and Fremonts Peak and the Grand Teton rise to the region of perpetual snow, more than 13,000 feet above sea level.

These various detached ranges divide the State into four well-defined drainage areas, namely, (1) the North Platte, (2) the Green, (3) the Big Horn, and (4) the Powder and other streams of northeastern Wyoming; and even these four great drainage areas do not comprise all of the State, as some streams of southeastern Wyoming are tributary to the South Platte, the Bear River of southwestern Wyoming flows into Great Salt Lake, while the northern half of Uinta County is drained by the Snake and Yellowstone rivers. The waters of Wyoming find their way to both oceans—to the Atlantic through the Mississippi and the Gulf of Mexico and to the Pacific through the Columbia and the Colorado.

The diversified physical features of the State produce a diversified climate, although there are many features of the climate which are common to all sections of the State. Local conditions are much more pronounced over Wyoming than over the broad level States of the Mississippi Valley, where the general drift of the air currents is in no wise obstructed by topographical features. Stations not more than 50 or 100 miles apart may have very dissimilar climates; thus in the lower portions of the Big Horn Valley, which is surrounded by high mountains except on the north, the growing season is from four to five months, and summer temperatures rise to 95° or 100° or more; at elevations of from 6,000 to 7,000 feet on either side of the valley, the growing season is short, frosts may be expected any month, only the hardier crops can be raised, and summer temperatures seldom rise above 90°.

Temperature.—The mean temperature of the different sections of the State varies from 34° to 47°, the former mean obtaining only at such places as are located at a high elevation or in cold valleys. In general, it can be stated that those portions of the State below 6,000 feet have mean temperatures above 40°. Situated, as Wyoming is, in what is known as the "subarid belt," the daily range of temperature is much greater than in the humid States; and the intensity of the sunlight, due to the clear and rarified atmosphere, makes a marked difference between the temperatures in the sun and in the shade. At stations above 6,000 feet temperatures rarely rise above 95° in the summer, and over the portions of the State below 5,000 feet, where temperatures of 100° may be experienced in the summer, the heat is not oppressive and sunstrokes are practically unknown. The dryness of the atmosphere, which prevents sunstrokes in summer, also tends to ameliorate the effects on man and beast of the extremes of cold during the winter. Over most of the State the temperature of winter very seldom falls below -25°, and the cold waves which sweep over the State are of but short duration; in fact, over most of the State, the greater portion of the winters are unusually pleasant and out-of-door work can be carried on with little discomfort. The lowest temperature on record for the State is -51°, and the extremely low temperatures are not recorded on the mountain or elevated stations, but in the valleys. At Basin, elevation 3,500 feet, a temperature of -51° was recorded, while at the same time, at Four Bear, elevation 6,500 feet, and distant but little more than 100 miles, the lowest temperature reached was but -40°.

Precipitation.—The normal annual precipitation for the different sections of the State varies from 8 to 20 inches, and these extremes are obtained at but few points in the State, the average for the State being about 13 inches. No reliable mountain records are available at this time, but it is probable that the yearly precipitation on some of the higher mountains of the State may be much in excess of 20 inches, most of which falls as snow during the winter and spring months.

Sunshine.—The percentage of sunshine in Wyoming is high, and its intensity by reason of the unusually clear skies and the altitude of the region is an important factor to be considered, whether considering the climate from an agricultural or physiological standpoint.

Winds.—The prevailing winds of the State are from the west, and their intensity varies with the topographical location of the different stations. Some sheltered valleys receive but little wind, while in many of the exposed locations the annual wind movement may exceed 100,000 miles. Owing to the diminished weight of the air over the plateaus the high winds of Wyoming do not exert as great a destructive force as the same velocity would at the sea-level stations.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Albany.....	Laramie.....	Southeastern..	855	Natrona.....	Alcova.....	Central....	850
Bighorn.....	Basin.....	Northern.....	846	Sheridan (see Buffalo).....	.....	Northern.....	.....
Carbon.....	Four Bear.....	Southern.....	845	Sweetwater (see Rawlins and Evanston).....	.....	Southern.....	.....
Converse.....	Rawlins.....	East central..	853	.....	.....	.....	.....
Crook (see Lusk and Buffalo).....	Lusk.....	Northeastern..	851	.....	.....	.....	.....
Fremont.....	Lander.....	Central.....	849	.....	.....	.....	.....
Johnson.....	Buffalo.....	North central..	847	Yellowstone Park ^a.....	.....	Northwestern..	844
Laramie.....	Cheyenne.....	Southeastern..	856	.....	.....	.....	.....
.....	Fort Laramie.....	.....	852	Weston (see Lusk).....	.....	Northeastern..	.....

^a Not a county.

STATE SUMMARY.

Station.	Number.	Temperature.						Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.
		° F.	° F.	° F.	° F.	.....	° F.	.....	Minimum below 32°.
Yellowstone Park.....	1	39	51	28	96	July, 1901.....	-35	February, 1899.....	1
Four Bear.....	2	40	53	27	92	.....do.....	-40	.....do.....	0
Basin.....	3	45	59	30	114	.....do.....	-51	.....do.....	45
Buffalo.....	4	45	59	31	104	July, 1900.....	-26	January, 1894.....	13
Thayne.....	5	39	53	24	96	.....do.....	-41	February, 1899.....	1
Lander.....	6	42	57	28	99	.....do.....	-36	January, 1901.....	6
Alcova.....	7	47	63	31	107	July, 1901.....	-34	February, 1899.....	43
Lusk.....	8	44	58	29	105	.....do.....	-35	.....do.....	24
Fort Laramie.....	9	47	64	31	106	July, 1897.....	-48	.....do.....	46
Rawlins.....	10	42	57	28	102	.....do.....	-30	.....do.....	13
Evanston.....	11	40	53	26	93	July, 1901.....	-34	February, 1903.....	1
Laramie.....	12	41	53	28	92	.....do.....	-40	February, 1899.....	0
Cheyenne.....	13	45	57	32	100	July, 1881.....	-38	January, 1875.....	6

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Yellowstone Park.....	1	.....	.....	.....	.....	Inches.	Inches.	Inches.	Inches.	Inches.
Four Bear.....	2	.....	.....	.....	.....	19.6	5.4	4.0	3.7	6.5
Basin.....	3	.....	.....	.....	.....	11.3	4.1	3.8	2.5	0.9
Buffalo.....	4	Sept. 12	May 13	Sept. 5	June 9	5.3	2.1	1.2	0.6	1.4
Thayne.....	5	Sept. 18	June 2	Sept. 9	June 21	11.1	4.2	3.9	1.6	1.4
Lander.....	6	Sept. 11	May 29	Aug. 23	June 18	14.3	4.0	2.7	3.3	4.3
Alcova.....	7	Sept. 12	May 25	.....do.....	June 15	13.4	6.3	2.6	2.6	1.9
Lusk.....	8	Sept. 14	.....do.....	Sept. 5	June 20	9.4	3.6	2.5	1.8	1.5
Fort Laramie.....	9	.....	.....	.....	.....	12.9	5.1	4.7	1.6	1.4
Rawlins.....	10	Sept. 16	June 5	Sept. 8	June 13	11.1	4.3	3.7	1.7	1.4
Evanston.....	11	.....	.....	.....	.....	12.9	4.3	2.8	2.6	2.9
Laramie.....	12	Sept. 11	May 31	Aug. 16	June 18	13.1	4.3	1.9	2.9	4.0
Cheyenne.....	13	Sept. 16	May 22	Aug. 29	June 11	9.9	3.5	3.5	2.0	0.9
.....	.....	.....	.....	.....	.....	13.1	4.7	5.0	2.1	1.3

WYOMING.

Northwestern Section: YELLOWSTONE PARK. Station: YELLOWSTONE PARK.

J. N. RYKER, Observer.

[Established by War Department 1887. Latitude, 44° 58' N. Longitude, 110° 41' W. Elevation, 6,370 feet.]

This station is located in Yellowstone National Park, Wyoming, and near the northern boundary of the park. The surrounding country is hilly and rugged, and many peaks in the park rise to an elevation of from 10,000 to 11,000 feet above sea level.

Records were maintained at the station by the War Department, under the direction of the Surgeon-General, till the close of the year 1903, when a regular station of the Weather Bureau was established in the park and observations begun by the Bureau. With but few interruptions records have been continuous since 1887. The instruments used consisted of maximum and minimum thermometers and were exposed in a latticed shelter. The rain gage was exposed in a plot adjacent to the post hospital. The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	29	45	14	-25	28	16	2.0	8	1.3	0.9	12.2	7.0	S.
January.....	18	28	48	12	-30	26	10	2.5	9	0.6	6.7	19.2	16.0	S.
February.....	19	28	47	9	-35	27	11	2.0	7	0.2	6.6	12.2	8.0	S.
Winter mean.....	20	28	.....	12	.....	.....	.....	6.5	24	2.1	14.2	43.6	.....	S.
March.....	26	35	58	16	-22	36	20	2.3	9	0.9	4.9	19.1	7.0	S.
April.....	38	48	70	27	0	43	31	1.3	7	0.8	1.4	8.7	6.0	S.
May.....	48	60	78	33	15	60	42	1.8	10	0.6	1.9	2.5	6.0	S.
Spring mean.....	37	48	.....	25	.....	.....	.....	5.4	26	2.3	8.2	30.3	.....	S.
June.....	55	68	92	41	22	62	50	1.7	10	0.9	0.9	1.0	4.0	S.
July.....	62	77	96	46	30	67	58	1.2	7	0.6	1.0	T.	T.	S.
August.....	61	78	93	46	30	68	57	1.1	5	0.4	1.8	0.0	0.0	S.
Summer mean.....	59	74	.....	44	.....	.....	.....	4.0	22	1.9	3.7	• 1.0	.....	S.
September.....	52	65	85	38	12	59	48	1.0	4	0.6	0.2	1.9	6.0	S.
October.....	42	54	74	30	0	46	36	1.1	6	0.5	1.7	4.7	4.2	SW.
November.....	29	38	60	21	-27	36	18	1.6	9	1.4	0.5	13.2	8.0	S.
Fall mean.....	41	52	.....	30	.....	.....	.....	3.7	19	2.5	2.4	19.8	.....	S.
Annual mean.....	39	51	96	28	-35	.....	.....	19.6	91	8.8	28.5	94.7	16.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1894	Jan. 5, 9, 23, 24; Feb. 3, 10, 11, 19-22; Dec. 27, 28.	June 5; July 9, 10, 14, 22, 23, 30; Aug. 4, 18, 21, 22, 24-29.	1899	Jan. 31; Feb. 1-6, 10, 12; Mar. 27.	July 10, 18-20; Sept. 11.
1895	Jan. 15, 27, 28; Feb. 10-14; Nov. 23.	July 2, 24, 27, 28; Aug. 6, 10, 20.	1900	Jan. 28; Feb. 14-16; Nov. 19-22; Dec. 31.	June 20-23, 25, 28, 29; July 8, 10, 11, 21, 29, 30, 31; Aug. 1-4.
1896	Mar. 2, 3; Nov. 26-30.	July 5, 6, 8-11; Aug. 19, 28.	1901	Jan. 1; Feb. 1, 2, 4, 9.	July 7, 8, 10, 11, 16, 17-26, 29-31; Aug. 1, 5, 15, 25.
1897	Jan. 24-28; Feb. 18; Mar. 12, 13, 22; Dec. 16.	July 11, 12, 27, 28; Aug. 11, 24.	1902	Jan. 23-29; Feb. 1....	July 24, 31; Aug. 12.
1898	Jan. 24, 25; Mar. 22; Nov. 21; Dec. 9, 31.	June 18, 19; July 10, 11, 14-16, 25; Aug. 9, 12, 19, 20, 26, 27; Sept. 19.	1903	Feb. 12, 13, 15; Nov. 16.	July 12, 20, 26; Aug. 16-21.

WYOMING.

Northern Section: BIGHORN COUNTY. Station: FOUR BEAR (BIG HORN RANCH).

W. D. PICKETT, Observer.

[Established by the Weather Bureau 1892. Latitude, 44° 8' N. Longitude, 109° 15' W. Elevation, 6,500 feet.]

The station is located in the western part of Bighorn County, on the upper Grey Bull River. The high mountains, locally known as the "rim rock," approach within 4 miles of the immediate valley on each side. The highest peak of the range to the north of the station is about 11,000 feet, while Frances Peak, to the south of the station, is considered to have an elevation of 12,500 feet above sea level. The valley extends above the station about 8 miles, where it forms a narrow gorge about 8 miles long, and then debouches into the upper basin of the Grey Bull River.

The station is supplied with maximum and minimum thermometers, shelter, and rain gage. Previous to 1898 the thermometers were exposed in a latticed shelter. In 1898 the station was equipped with a standard cotton-region shelter. The rain gage was exposed in an open lot near the ground. The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 26	° F. 37	° F. 60	° F. 15	° F. -23	° F. 33	° F. 20	In. 0.3	3	In. 0.4	In. 0.2	In. 2.4	In. 4.0	W.
January.....	24	35	62	11	-32	27	19	0.2	2	0.1	0.1	4.5	6.0	W.
February.....	20	34	62	9	-40	30	12	0.4	4	0.2	0.2	6.2	6.0	SW.
Winter mean.....	23	35		12				0.9	9	0.7	0.5	14.1		W.
March.....	26	38	66	14	-26	33	22	0.9	7	0.6	1.3	11.8	12.0	W.
April.....	37	50	73	25	-2	42	30	1.4	7	1.2	0.4	13.2	12.0	W.
May.....	46	59	78	34	6	52	42	1.8	10	0.8	5.0	5.1	7.0	SW.
Spring mean.....	36	49		24				4.1	24	2.6	6.7	30.1		W.
June.....	54	67	86	40	22	59	49	1.8	9	1.1	2.3	0.8	6.0	SW.
July.....	60	74	92	45	28	66	57	1.0	8	0.7	1.6	T.	T.	W.
August.....	60	75	88	45	20	64	56	1.0	7	T.	1.8	0.0	0.0	W.
Summer mean.....	58	72		43				3.8	24	1.8	5.7	0.8		W.
September.....	50	64	85	36	8	57	46	1.2	4	1.1	0.1	3.5	8.0	SW.
October.....	42	55	76	29	-1	46	37	0.8	4	0.4	1.6	7.4	10.0	SW.
November.....	31	43	68	21	-28	38	22	0.5	3	0.3	0.5	7.2	8.0	W.
Fall mean.....	41	54		29				2.5	11	1.8	2.2	18.1		SW.
Annual mean.....	40	53	92	27	-40			11.3	88	6.9	15.1	63.1	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 85° or above.	Year.	Minimum below -20°.	Maximum 85° or above.
1894	Jan. 5, 23; Feb. 20, 21..	None.	1899	Feb. 1-6, 11, 22.....	July 20.
1895	Jan. 27; Feb. 11.....	Do.	1900	Feb. 15, 16; Dec. 31...	June 21, 29; July 31; Aug. 1, 2.
1896	Mar. 2, 3; Nov. 27, 28..	Do.	1901	Jan. 1; Dec. 14.....	July 7, 17-19, 21, 31.
1897	Jan. 25-27; Mar. 12...	July 12; Aug. 11, 23, 24.	1902	Jan. 24-26, 29; Feb. 1	July 31.
1898	Mar. 22; Dec. 31.....	Aug. 3, 19, 26; Sept. 18.	1903	Feb. 15.....	None.

WYOMING.

Northwestern Section: YELLOWSTONE PARK. Station: YELLOWSTONE PARK.

J. N. RYKER, Observer.

[Established by War Department 1887. Latitude, 44° 58' N. Longitude, 110° 41' W. Elevation, 6,370 feet.]

This station is located in Yellowstone National Park, Wyoming, and near the northern boundary of the park. The surrounding country is hilly and rugged, and many peaks in the park rise to an elevation of from 10,000 to 11,000 feet above sea level.

Records were maintained at the station by the War Department, under the direction of the Surgeon-General, till the close of the year 1903, when a regular station of the Weather Bureau was established in the park and observations begun by the Bureau. With but few interruptions records have been continuous since 1887. The instruments used consisted of maximum and minimum thermometers and were exposed in a latticed shelter. The rain gage was exposed in a plot adjacent to the post hospital. The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	29	45	14	-25	28	16	2.0	8	1.3	0.9	12.2	7.0	S.
January.....	18	28	48	12	-30	26	10	2.5	9	0.6	6.7	19.2	16.0	S.
February.....	19	28	47	9	-35	27	11	2.0	7	0.2	6.6	12.2	8.0	S.
Winter mean.....	20	28	.....	12	.....	.....	.....	6.5	24	2.1	14.2	43.6	.....	S.
March.....	26	35	58	16	-22	31	20	2.3	9	0.9	4.9	19.1	7.0	S.
April.....	38	48	70	27	0	43	31	1.3	7	0.8	1.4	8.7	6.0	S.
May.....	48	60	78	33	15	60	42	1.8	10	0.6	1.9	2.5	6.0	S.
Spring mean.....	37	51	.....	25	.....	.....	.....	5.4	26	2.3	8.2	30.3	.....	S.
June.....	55	68	92	41	22	62	50	1.7	10	0.9	0.9	1.0	4.0	S.
July.....	62	77	96	46	30	67	58	1.2	7	0.6	1.0	T.	T.	S.
August.....	61	78	93	46	30	68	57	1.1	5	0.4	1.8	0.0	0.0	S.
Summer mean.....	59	74	.....	44	.....	.....	.....	4.0	22	1.9	3.7	1.0	.....	S.
September.....	52	65	85	38	12	59	48	1.0	4	0.6	0.2	1.9	6.0	S.
October.....	42	54	74	30	0	46	36	1.1	6	0.5	1.7	4.7	4.2	SW.
November.....	29	38	60	21	-27	36	18	1.6	9	1.4	0.5	13.2	8.0	S.
Fall mean.....	41	52	.....	30	.....	.....	.....	3.7	19	2.5	2.4	19.8	.....	S.
Annual mean.....	39	51	96	28	-35	.....	.....	19.6	91	8.8	28.5	94.7	16.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1894	Jan. 5, 9, 23, 24; Feb. 3, 10, 11, 19-22; Dec. 27, 28.	June 5; July 9, 10, 14, 22, 23, 30; Aug. 4, 18, 21, 22, 24-29.	1899	Jan. 31; Feb. 1-6, 10, 12; Mar. 27.	July 10, 18-20; Sept. 11.
1895	Jan. 15, 27, 28; Feb. 10-14; Nov. 23.	July 2, 24, 27, 28; Aug. 6, 10, 20.	1900	Jan. 28; Feb. 14-16; Nov. 19-22; Dec. 31.	June 20-23, 25, 28, 29; July 8, 10, 11, 21, 29, 30, 31; Aug. 1-4.
1896	Mar. 2, 3; Nov. 26-30.	July 5, 6, 8-11; Aug. 19, 28.	1901	Jan. 1; Feb. 1, 2, 4, 9.	July 7, 8, 10, 11, 16, 17-26, 29-31; Aug. 1, 5, 15, 25.
1897	Jan. 24-28; Feb. 18; Mar. 12, 13, 22; Dec. 16.	July 11, 12, 27, 28; Aug. 11, 24.	1902	Jan. 23-29; Feb. 1....	July 24, 31; Aug. 12.
1898	Jan. 24, 25; Mar. 22; Nov. 21; Dec. 9, 31.	June 18, 19; July 10, 11, 14-16, 25; Aug. 9, 12, 19, 20, 26, 27; Sept. 19.	1903	Feb. 12, 13, 15; Nov. 16.	July 12, 20, 26; Aug. 16-21.

WYOMING.

Northern Section: BIGHORN COUNTY. Station: FOUR BEAR (BIG HORN RANCH).

W. D. PICKETT, Observer.

[Established by the Weather Bureau 1892. Latitude, 44° 8' N. Longitude, 109° 15' W. Elevation, 6,500 feet.]

The station is located in the western part of Bighorn County, on the upper Grey Bull River. The high mountains, locally known as the "rim rock," approach within 4 miles of the immediate valley on each side. The highest peak of the range to the north of the station is about 11,000 feet, while Frances Peak, to the south of the station, is considered to have an elevation of 12,500 feet above sea level. The valley extends above the station about 8 miles, where it forms a narrow gorge about 8 miles long, and then debouches into the upper basin of the Grey Bull River.

The station is supplied with maximum and minimum thermometers, shelter, and rain gage. Previous to 1898 the thermometers were exposed in a latticed shelter. In 1898 the station was equipped with a standard cotton-region shelter. The rain gage was exposed in an open lot near the ground. The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	26	37	60	15	-23	33	20	0.3	3	0.4	0.2	2.4	4.0	W.
January.....	24	35	62	11	-32	27	19	0.2	2	0.1	0.1	4.5	6.0	W.
February.....	20	34	62	9	-40	30	12	0.4	4	0.2	0.2	6.2	6.0	SW.
Winter mean.....	23	35	.....	12	.....	.....	.....	0.9	9	0.7	0.5	14.1	.....	W.
March.....	26	38	66	14	-26	33	22	0.9	7	0.6	1.3	11.8	12.0	W.
April.....	37	50	73	25	-2	42	30	1.4	7	1.2	0.4	13.2	12.0	W.
May.....	46	59	78	34	6	52	42	1.8	10	0.8	5.0	5.1	7.0	SW.
Spring mean.....	36	49	.....	24	.....	.....	.....	4.1	24	2.6	6.7	30.1	.....	W.
June.....	54	67	86	40	22	59	49	1.8	9	1.1	2.3	0.8	6.0	SW.
July.....	60	74	92	45	28	66	57	1.0	8	0.7	1.6	T.	T.	W.
August.....	60	75	88	45	20	64	56	1.0	7	T.	1.8	0.0	0.0	W.
Summer mean.....	58	72	.....	43	.....	.....	.....	3.8	24	1.8	5.7	0.8	.....	W.
September.....	50	64	85	36	8	57	46	1.2	4	1.1	0.1	3.5	8.0	SW.
October.....	42	55	76	29	-1	46	37	0.8	4	0.4	1.6	7.4	10.0	SW.
November.....	31	43	68	21	-28	38	22	0.5	3	0.3	0.5	7.2	8.0	W.
Fall mean.....	41	54	.....	29	.....	.....	.....	2.5	11	1.8	2.2	18.1	.....	SW.
Annual mean.....	40	53	92	27	-40	.....	.....	11.3	68	6.9	15.1	63.1	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -20°.	Maximum 85° or above.	Year.	Minimum below -20°.	Maximum 85° or above.
1894	Jan. 5, 23; Feb. 20, 21..	None.	1899	Feb. 1-6, 11, 22.....	July 20.
1895	Jan. 27; Feb. 11.....	Do.	1900	Feb. 15, 16; Dec. 31...	June 21, 29; July 31; Aug. 1, 2.
1896	Mar. 2, 3; Nov. 27, 28..	Do.	1901	Jan. 1; Dec. 14.....	July 7, 17-19, 21, 31.
1897	Jan. 25-27; Mar. 12....	July 12; Aug. 11, 23, 24.	1902	Jan. 24-26, 29; Feb. 1.	July 31.
1898	Mar. 22; Dec. 31.....	Aug. 3, 19, 26; Sept. 18.	1903	Feb. 15.....	None.

WYOMING.

Northern District: BIGHORN COUNTY. Station: BASIN.

JAMES I. PATTEN, Observer.

[Established by the Weather Bureau 1897. Latitude, 44° 25' N. Longitude, 108° 1' W. Elevation, 3,500 feet.]

This station is located in the central portion of Bighorn County, a vast country lying between latitudes 43° and 45° N., and longitudes 107° and 110° W., on the Bighorn River, which traverses the county from south to north through its central and lowest portion. This section of the State, usually spoken of as the "Bighorn Basin," is made up of snow-capped mountains, foothills, bad lands, elevated plains, and valleys.

The instruments consist of maximum and minimum thermometers, with a shelter for the same, and a combined snow and rain gage. The shelter is securely fastened to the north side of a substantial building and the gage is located in a yard, so as to receive unobstructed the full amount of precipitation.

Monthly mean temperatures were computed from the daily extremes.

Tabulated data are for the period of observation, May 1, 1898, to December 31, 1903, with the exception of the temperature record, which is missing for May, June, August, and September, 1898, and for the entire year 1901.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	18	30	55	6	-23	27	12	0.2	2	T.	0.3	2.4	4.1	NW.
January.....	17	29	53	4	-39	22	12	0.4	2	0.2	1.8	5.0	4.8	NW.
February.....	13	27	56	-1	-51	23	2	0.8	4	0.1	3.6	9.8	6.8	NW.
Winter mean.....	16	29		3				1.4	8	0.3	5.7	17.2		NW.
March.....	30	43	72	20	-11	36	20	0.4	2	0.3	1.9	3.9	9.0	NW.
April.....	46	60	83	31		46	45	0.6	4	0.8	0.1	0.8	2.8	NW.
May.....	58	73	93	43	24	61	55	1.1	6	0.6	0.6	0.0	0.0	SE.
Spring mean.....	45	59		31				2.1	12	1.7	2.6	4.7		NW.
June.....	69	85	110	54	33	72	67	0.7	5	0.2	0.5	0.0	0.0	NW.
July.....	75	93	114	57	40	78	73	0.3	2	0.2	0.2	0.0	0.0	SE.
August.....	72	89	103	56	37	74	70	0.2	2	T.	0.3	0.0	0.0	SE.
Summer mean.....	72	89		56				1.2	9	0.4	1.0	0.0		SE.
September.....	60	77	97	41	26	62	50	0.2	2	0.1	0.2	T.	T.	NW.
October.....	46	62	81	30	16	49	43	0.3	2	T.	0.4	0.3	1.1	NW.
November.....	31	44	69	17	-12	34	28	0.1	1	T.	0.0	0.4	1.0	NW.
Fall mean.....	46	61		29				0.6	5	0.1	0.6	0.7		NW.
Annual mean.....	45	59	114	30	-51			5.3	34	2.5	9.9	22.6	9.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1898	Nov. 21; Dec. 9-14, 16, 31.	None.	1900	Jan. 1, 2, 28; Feb. 14-17, 19; Dec. 31.	June 19-29; July 8-12, 17, 20-26, 29-31; Aug. 1, 3, 7-9, 28, 30.
1899	Jan. 1, 6-8, 31; Feb. 1-7, 11-14, 23; Mar. 22; Dec. 14, 16, 17, 19-21, 28-30.	June 17, 18, 24, 25, 28-30; July 7-11, 15, 18-25; Aug. 1, 3, 4, 14, 25, 29; Sept. 1.	1902	Jan. 23-31; Feb. 1, 2...	June 8, 9, 11, 24, 25; July 11, 13-16, 21, 22, 24-29, 31; Aug. 1, 3, 14; Sept. 4.
			1903	Feb. 13-15; Nov. 17, 18	June 4; July 12-14, 19-26; Aug. 3, 16-20.

WYOMING.

North Central District: JOHNSON COUNTY. Station: BUFFALO.

CHARLES H. PINSEY, Observer.

[Established by Weather Bureau April, 1899. Latitude, 44° 23' N. Longitude, 100° 46' W. Elevation, 4,635 feet.]

This station is located in Clear Creek Valley, on the eastern slope of the Bighorn Mountains.

Records were kept at Fort McKinney, near Buffalo, from 1886 till the fort was discontinued in November, 1894, although the records during 1886 and 1887 were fragmentary. A voluntary station of the Weather Bureau was established at Buffalo in April, 1899, and supplied with maximum and minimum thermometers, gage, and shelter, and records have been continuous since the establishment of the station. The rain gage is exposed in a yard adjacent to the court-house.

Tabulated data are from the following periods of observation: Maximum and minimum temperatures, number of days with 0.01 precipitation, snowfall, dates of temperature extremes, and frost, January to March, July to October, 1894, and April 6, 1899, to December 31, 1903. Remainder of data is from all available records, January, July, August, September, 1886, May, June, August to December, 1887, January to November, 1888, January 1, 1889, to October 31, 1894, and April 6, 1899, to December 31, 1903.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute max- imum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	39	60	14	-24	36	23	0.4	5	0.0	0.1	5.0	4.0	NW.
January.....	23	37	60	11	-26	31	13	0.4	2	0.3	0.4	2.2	2.0	NW.
February.....	23	34	63	10	-24	32	16	0.6	5	0.5	0.4	4.9	7.0	NW.
Winter mean.....	25	37		12				1.4	12	0.8	0.9	12.1		NW.
March.....	32	44	75	20	-6	42	23	0.8	7	0.1	0.5	7.1	4.3	NW.
April.....	45	59	82	32	14	50	39	1.4	8	0.4	1.4	6.8	6.0	NW.
May.....	53	69	91	36	22	60	46	2.0	8	0.4	2.3	1.7	6.0	NW.
Spring mean.....	43	57		29				4.2	23	0.9	4.2	15.6		NW.
June.....	61	75	102	47	28	69	57	2.0	8	1.6	1.6	T.	T.	NW.
July.....	69	83	104	53	37	74	65	1.1	6	0.6	2.0	0.0	0.0	NW.
August.....	69	84	104	53	36	73	66	0.8	3	0.2	2.5	0.0	0.0	NW.
Summer mean.....	66	81		51				3.9	17	2.4	6.1	T.		NW.
September.....	58	70	95	40	24	63	52	0.7	4	0.1	2.6	1.1	3.0	NW.
October.....	47	62	83	32	15	51	42	0.5	2	0.9	T.	0.4	2.0	NW.
November.....	36	52	74	20	-26	42	30	0.4	3	0.2	0.4	2.0	2.0	NW.
Fall mean.....	47	61		31				1.6	9	1.2	3.0	3.5		NW.
Annual mean.....	45	59	104	31	-26			11.1	61	5.3	14.2	31.2	7.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1899	Dec. 27.....	June 17, 20, 28, 29; July 9, 10, 18-22, 24; Aug. 6, 14, 27, 28, 30, 31; Sept. 1, 3.	1901	Feb. 4, 21, 22; Dec. 14.	July 2, 3, 6, 7, 10-13, 17-23, 31; Aug. 1, 5, 15, 24; Sept. 2.
1900	Jan. 27; Feb. 1, 13-15; Dec. 30.	May 27; June 8, 19-26, 28-30; July 8-12, 20, 21, 24, 25, 29-31; Aug. 1, 2, 6-8, 14-16, 28-31; Sept. 6.	1902	Jan. 24-29; Feb. 1, 2...	June 9; July 24, 28, 31; Aug. 24; Sept. 4.
			1903	Feb. 3, 4, 6, 7, 13-15; Nov. 17, 18.	July 13, 21, 23, 24, 26; Aug. 3, 19, 20, 22.

WYOMING.

Western Section: UINTA COUNTY. Station: THAYNE.

FRED HANCEY, Observer.

[Established by Weather Bureau, 1899. Latitude, 42° 58' N. Longitude, 110° 58' W. Elevation, 5,900 feet.]

This station is located in Star Valley, near the extreme western portion of Uinta County and but a few miles from the Wyoming-Idaho State line. It is located near the central part of the "lower valley," Star Valley being divided by a narrow gorge into two separate valleys, designated as the "lower" and the "upper" valleys. The whole of Star Valley is about 25 miles in length and 5 miles in breadth and is traversed by Salt River. The valleys are extremely level, and the mountains on either side rise quite abruptly to heights of from 9,000 to 12,000 feet.

The instruments consist of maximum and minimum thermometers, with standard shelter for the same, and a combined rain and snow gage. The shelter was located on the north side of the observer's house till the summer of 1902, when it was removed to an open plat, to the west of the house, near where the gage has always been located.

Monthly mean temperatures are computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wd.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	19	28	48	7	-25	21	17	1.2	10	1.4	0.6	9.0	3.0	SE.
January.....	20	30	44	10	-26	27	15	1.7	11	0.3	2.9	15.2	7.0	SE.
February.....	19	30	56	7	-41	28	4	1.4	13	1.5	2.2	14.2	9.5	SE.
Winter mean.....	19	29	50	8	-30	25	12	4.3	34	3.2	5.7	38.4	9.5	SE.
March.....	29	41	56	17	-23	32	25	0.8	10	1.5	1.3	7.3	6.2	SE.
April.....	38	50	74	25	4	43	30	1.2	10	1.0	0.8	4.9	3.5	SE.
May.....	48	63	81	34	11	53	44	2.0	11	1.4	2.4	4.4	4.6	W.
Spring mean.....	38	51	72	25	11	43	33	4.0	31	3.9	4.5	16.6	4.6	SE.
June.....	56	73	92	38	21	59	53	0.9	7	1.1	1.0	T.	T.	W.
July.....	61	79	96	39	24	62	57	1.0	8	1.0	1.5	0.0	0.0	W.
August.....	59	79	91	38	25	62	56	0.8	5	0.5	1.3	0.0	0.0	SW.
Summer mean.....	59	77	93	38	23	62	56	2.7	20	2.6	3.8	T.	0.0	W.
September.....	45	69	85	30	14	51	47	4.7	0.7	0.5	T.	0.1	0.5	W.
October.....	42	57	74	26	11	45	39	1.4	8	0.4	2.3	2.4	3.5	W.
November.....	32	41	65	20	-16	35	28	1.2	12	1.1	0.8	5.2	5.6	SE.
Fall mean.....	41	56	74	25	-12	44	38	3.3	25	2.0	3.1	7.7	5.6	W.
Annual mean.....	39	53	71	24	-41	50	44	14.3	11.0	11.7	17.1	62.7	9.5	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1898	Dec. 5-14.....		1902	Jan. 24-30; Feb. 1;	June 9, 22, 23; July 14, 21, 22, 24, 25, 30, 31;
1899	Feb. 4-7, 12; Dec. 19-21.	June 29; July 7, 10, 19-21.		Mar. 29; Dec. 3, 14-17, 30.	Aug. 1, 2, 5-7.
1900	Jan. 26, 28; Feb. 12, 16, 17. (November, December missing).	June 20-25, 27-30; July 1, 8-12, 17, 20, 21, 25, 29-31; Aug. 1, 4, 14, 27, 29.	1903	Jan. 11-18; Feb. 3-7, 12-16, 19-21, 26, 28; Mar. 1, 2; Nov. 17, 18; Dec. 27-29.	July 12, 13, 15, 19, 20, 26; Aug. 2, 5, 6, 15-19, 21, 30, 31; Sept. 1.
1901	(January, February missing). Dec. 20, 21.	(July missing); Aug. 3, 4, 7, 13, 14, 17, 25.			

WYOMING.

Central District: FREMONT COUNTY. Station: LANDER.

G. W. SCOTT, Observer.

[Established August 1, 1891. Latitude, 42° 50' N. Longitude, 108° 45' W. Elevation, 5,367 feet.]

The first building occupied by the office was a small 2-room, 1-story building on Second street, between Main and Garfield. The office was transferred to its present location, 36 Main street, rooms 3 and 4, on January 1, 1895. The instrument shelter is on the northeast quarter of the roof and provides excellent exposure for the thermometers, 26 feet above ground. The combined wind vane and anemometer support is on the southeast quarter of the roof, the anemometer cups being 36 feet above ground. The snow and rain gages are about the center of the building, their tops 17 feet above ground. All the instruments have the very best possible exposure. The Wind River range of the Rocky Mountain system stretches from the southeast, past the station and on to the northwest. Its peaks are covered with snow for nine months in the year, and there are points along the range where snow remains throughout the year.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.							Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.		
												Average depth.	Greatest depth in 24 hours.						
December.....	° F. 21	° F. 35	° F. 61	° F. 8	° F. -29	° F. 27	° F. 16	In. 0.8	4	In. 0.2	In. 0.7	In. 7.3	In. 9.0	P. ct. 75	Gra. 0.67	P. ct. 66	Gra. 1.12	SW.	
January.....	20	34	59	7	-36	28	11	0.4	3	0.2	0.3	3.5	6.1	74	0.60	64	0.72	SW.	
February.....	20	34	64	7	-35	29	9	0.7	5	0.2	T.	6.7	7.0	74	0.63	56	0.95	SW.	
Winter mean.....	20	34	.....	7	.....	.....	.....	1.9	12	0.6	1.0	17.5	.....	74	0.63	62	0.93	SW.
March.....	31	44	70	18	-22	38	27	1.6	8	0.8	2.7	15.8	1.9	72	0.98	49	1.30	SW.	
April.....	42	55	78	29	2	46	37	2.6	7	1.4	1.1	15.3	13.1	72	1.58	39	1.59	SW.	
May.....	52	65	86	38	13	58	47	2.1	8	1.2	6.0	5.9	6.0	71	2.18	36	2.21	SW.	
Spring mean.....	42	55	.....	28	.....	.....	.....	6.3	23	3.4	9.8	37.0	.....	72	1.58	41	1.70	SW.
June.....	60	76	95	45	26	66	56	1.2	6	0.9	3.0	1.3	15.4	62	2.53	27	2.22	SW.	
July.....	66	83	99	50	34	72	63	0.8	5	0.3	0.7	0.0	0.0	65	2.62	28	2.88	SW.	
August.....	65	82	94	48	33	68	63	0.6	5	0.1	0.6	0.0	0.0	62	2.62	28	2.70	SW.	
Summer mean.....	64	80	.....	48	.....	.....	.....	2.6	16	1.3	4.3	1.3	.....	63	2.59	28	2.60	SW.
September.....	55	72	90	39	7	59	52	1.0	5	0.8	0.4	3.6	16.3	69	2.11	34	2.38	SW.	
October.....	44	59	79	29	10	48	39	0.1	5	1.1	2.2	5.1	5.0	73	1.54	48	1.82	SW.	
November.....	32	46	72	18	-31	38	25	0.6	4	0.1	0.2	5.3	8.4	72	1.02	56	1.25	SW.	
Fall mean.....	44	59	.....	29	.....	.....	.....	2.6	14	2.0	2.8	14.4	.....	71	1.56	46	1.82	SW.
Annual mean.....	42	57	99	28	-36	.....	.....	13.4	65	7.3	17.9	70.2	16.3	70	1.59	44	1.76	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 5-7, 9, 23, 24; Feb. 3-5, 11-13, 20, 22, 23; Nov. 16; Dec. 28.	July 9, 10, 22, 23; Aug. 12, 25.	1899	Jan. 1, 6, 31; Feb. 1-3, 10-12, 22, 23; Mar. 5; Dec. 14, 19, 21.	June 18, 29; July 8-10, 20, 21.
1895	Jan. 26-28; Feb. 1, 7, 10-12, 14-16; Nov. 7, 24, 25; Dec. 3.	July 24, 25, 27.	1900	Feb. 8, 12-17; Dec. 28, 29, 31.	June 20-22, 25, 26, 28-30; July 10-12, 17, 30, 31; Aug. 1, 2, 28.
1896	Jan. 3; Mar. 2, 3; Nov. 27-30.	July 5, 8, 11, 12.	1901	Jan. 1, 2; Feb. 5, 9, 10-13; Dec. 13-15.	July 6, 7, 11-14, 16-23, 27-31; Aug. 1, 5.
1897	Jan. 4, 25-28; Dec. 3, 4, 16-21.	July 12, 28; Aug. 24.	1902	Jan. 25-30; Feb. 1, 2.	June 9; July 14, 15, 22-24, 28, 31; Aug. 1, 3, 4.
1898	Jan. 13-15, 18, 19, 25-27; Dec. 8-11, 30, 31.	July 14, 25, 26; Aug. 3, 19.	1903	Jan. 11; Feb. 4, 12-16; Mar. 20; Dec. 12, 13.	July 13, 20, 26; Aug. 6, 17, 19, 20; Sept. 1.

WYOMING.

Central District: NATRONA COUNTY. Station: ALCOVA.

A. F. HOLLEBAUGH, Observer.

[Established by Weather Bureau December, 1898. Latitude, 42° 44' N. Longitude, 106° 45' W. Elevation, 5,366 feet.]

The station, located a little south and east of the center of the State, is surrounded on the south and west by a spur of the Rattlesnake Mountains, and on the east and north by the "red reef," which is very precipitous and in places 400 feet high. The North Platte River enters the town from the southwest through a canyon in the Rattlesnake hills, and leaves it by a break in the "red reef" to the north of the town.

The station is supplied with maximum and minimum thermometers, with a standard shelter for the same, and a combined rain and snow gage. The shelter is fastened to the northwest corner of the post-office building, and the rain gage is located in a vacant lot 100 feet distant, all instruments being well exposed.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1899, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	27	39	55	15	-22	32	21	0.7	3	0.6	1.4	7.9	9.0	NW.
January.....	29	40	56	17	-21	33	26	0.4	2	0.1	0.1	6.5	8.0	NW.
February.....	22	34	60	10	-34	34	13	0.4	2	0.7	0.9	5.5	10.0	S.
Winter mean.....	26	38		14				1.5	7	1.4	2.4	19.9		NW.
March.....	33	47	72	20	-17	38	26	0.6	2	T.	1.2	8.8	8.0	W.
April.....	45	62	88	28	1	46	42	1.4	5	3.0	1.0	4.8	8.0	W.
May.....	55	73	97	38	12	61	48	1.6	4	0.5	1.6	T.	0.2	W.
Spring mean.....	44	61		29				3.6	11	3.5	3.8	13.6		W.
June.....	64	82	104	45	20	71	56	1.0	4	T.	2.2	0.0	0.0	NW.
July.....	71	91	107	51	32	78	65	1.2	4	1.8	1.3	0.0	0.0	W.
August.....	70	90	103	50	27	73	64	0.3	2	T.	0.4	0.0	0.0	SW.
Summer mean.....	68	88		49				2.5	10	1.8	3.9	0.0		W.
September.....	58	77	94	39	23	60	54	0.9	2	0.9	T.	0.9	4.0	W.
October.....	48	65	81	31	10	52	40	0.8	2	0.7	1.4	1.2	6.0	W.
November.....	38	52	77	23	-3	41	36	0.1	1	T.	0.5	2.8	6.0	W.
Fall mean.....	48	65		31				1.8	5	1.6	1.9	4.9		W.
Annual mean.....	47	63	107	31	-34			9.4	33	8.3	12.0	38.4	10.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1899, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1899	Jan. 30; Feb. 1-7, 11, 12, 22; Mar. 27; Dec. 13.	June 18, 29, 30; July 7-9, 20, 21, 25.	1901	Jan. 1 Feb. 9; Dec. 14.	May 18, 19; July 3, 6-14, 16-23, 27-29, 31; Aug. 1, 5, 7, 13, 15, 21, 25.
1900	Jan. 28; Feb. 8, 14-16; Dec. 31.	June 19-30; July 8-13, 21, 29-31; Aug. 1, 2, 7, 9, 19, 27-31.	1902	Jan. 25-27, 29; Feb. 2.	June 4, 8, 9, 10, 23; July 9, 11, 12, 14-16, 22-24, 28-31; Aug. 22, 25, 26.
			1903	Feb. 13-15.....	June 28; July 1, 12, 25, 27, 28; Aug. 6.

WYOMING.

East Central Section: CONVERSE COUNTY. Station: LUSK.

D. E. GODDARD, Observer.

[Established 1880. Latitude, 42° 42' N. Longitude, 104° 20' W. Elevation, 5,007 feet.]

Lusk is located near the eastern boundary of Wyoming, near the divide which separates the waters of the Missouri from the waters of the Platte, thus making the elevation of Lusk greater than places either to the south or to the north, and producing a correspondingly lower mean temperature. The station is located just east of a range of hills, with rolling land to the east, north, and south.

The instruments supplied consist of maximum and minimum thermometers, with standard shelter for the same, and a combined snow and rain gage.

Previous to 1898 the thermometers were exposed in a perforated box. In that year a standard cotton region shelter was provided. The rain gage is located in an open lot near the ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	26	37	59	12	-32	35	21	0.4	3	0.2	0.1
January.....	23	36	57	11	-30	28	17	0.5	3	0.6	1.2
February.....	21	32	59	9	-35	29	8	0.6	4	T.	0.2
Winter mean.....	23	35		11				1.5	10	0.8	1.5
March.....	29	41	73	17	-24	33	25	1.2	5	1.6	1.2
April.....	43	56	85	29	4	46	38	1.6	7	1.0	2.6
May.....	53	68	92	39	20	58	46	2.3	8	0.9	3.2
Spring mean.....	42	55		28				5.1	20	3.5	7.2
June.....	62	78	100	47	29	67	58	2.3	7	0.8	4.6
July.....	69	87	105	52	34	73	66	1.7	5	1.0	1.7
August.....	68	85	100	51	32	71	66	0.7	4	2.3	1.0
Summer mean.....	66	83		50				4.7	16	4.1	7.3
September.....	57	73	96	40	16	64	52	0.6	4	0.7	T.
October.....	45	60	82	29	9	47	39	0.7	3	0.2	2.4
November.....	32	46	72	17	-16	37	22	0.3	2	0.6	T.
Fall mean.....	45	60		29				1.6	9	1.5	2.4
Annual mean.....	44	58	105	29	-35			12.9	55	9.9	18.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1894	January, February, and December missing.	June 17; July 9, 23-25; Aug. 20.	1898	Mar. 21, 22; Nov. 20, 21; Dec. 8, 29-31.	June 19, 21, 27; July 3, 4, 9, 11, 20, 21, 22, 25; Aug. 18-20, 25, 26, 28, 29.
1895	January and February missing; Mar. 13-15; Nov. 25; Dec. 1, 2.	July 3, 14, 16, 27; Aug. 11; Sept. 12.	1899	Jan. 3-5, 29-31; Feb. 1-6, 10-12, 21, 22; Dec. 12.	June 26-29; July 10, 11, 19-23; Sept. 2.
1896	Jan. 2, 3; Mar. 2, 3; Nov. 25-29.	June 16, 29, 30; July 4, 9-13, 31; Aug. 1, 5, 6, 13.	1900	Jan. 27; Feb. 7, 8, 13-15; Dec. 30, 31.	June 28, 29; July 11, 31; Aug. 1.
1897	Jan. 23-28; Mar. 12; Nov. 28; Dec. 2, 15-17.	June 11-14, 20, 30; July 5, 6, 15, 16, 21, 26-28; Aug. 24, 31; Sept. 1, 2.	1901	Jan. 1, 5, 10; Feb. 4, 7-9, 19-21; Dec. 14, 15.	July 11, 12, 18-20.
			1902	Jan. 25-31; Feb. 1.....	June 8, 9, 23; July 14, 30; Aug. 15.
			1903	Feb. 6, 12-15; Nov. 16-18; Dec. 11, 12.	Aug. 18.

WYOMING.

Southeastern Section: LARAMIE COUNTY. Station: FORT LARAMIE.

JOHN HUNTON, Observer.

[Latitude, 42° 12' N. Longitude, 104° 31' W. Elevation, 4,270 feet.]

This station is located in the eastern part of the State, in a valley between the Laramie and Platte rivers, and about 1½ miles from their confluence. The surrounding country is undulating.

The earliest meteorological records in Wyoming were kept at Fort Laramie, the records extending back to 1860, but the records from which the table is compiled cover only the period from October 1, 1894, to December 31, 1903.

A shelter of the standard pattern is in use, as is also rain gage, maximum thermometer, and minimum thermometer. The shelter is located in a yard 100 feet square, with a house 22 feet high, forming east side of inclosure; the gage is located on top of the shelter, which is 4½ feet above ground.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.				Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.	
December.....	28	44	75	13	-41	35	22	0.5	3	0.2	1.1	5.8	W.
January.....	25	42	65	12	-30	31	24	0.5	3	0.0	0.0	7.0	W.
February.....	27	38	68	9	-48	32	6	0.4	4	0.8	0.8	6.6	W.
Winter mean.....	27	41	.....	11	.....	.....	.....	1.4	10	1.0	1.9	19.4	W.
March.....	34	47	79	21	-24	38	27	0.7	5	1.3	2.1	9.9	W.
April.....	45	61	90	32	12	50	45	1.6	6	1.5	3.5	5.6	W.
May.....	56	72	93	41	22	60	53	2.0	9	1.5	4.3	T.	W.
Spring mean.....	45	60	.....	31	.....	.....	.....	4.3	20	4.3	9.9	15.5	W.
June.....	66	81	102	50	28	72	61	1.4	7	1.0	3.4	0.0	W.
July.....	74	89	106	55	40	79	69	1.4	5	0.9	1.6	0.0	W.
August.....	72	90	106	53	39	73	70	0.9	5	2.7	0.6	0.0	W.
Summer mean.....	71	87	.....	53	.....	.....	.....	3.7	17	4.6	5.6	0.0	W.
September.....	60	80	102	41	19	67	56	0.8	4	1.6	0.4	0.8	W.
October.....	46	67	91	29	9	51	41	0.6	4	0.3	0.3	0.5	W.
November.....	34	52	77	18	-14	41	28	0.3	3	0.6	0.2	3.7	W.
Fall mean.....	47	66	.....	30	.....	.....	.....	1.7	11	2.5	0.9	5.0	W.
Annual mean.....	47	64	106	31	-48	.....	.....	11.1	58	12.4	18.3	39.9	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 95° or above.	Year.	Minimum below -10°.	Maximum 95° or above.
1895	Jan. 27, 28; Feb. 1, 7, 12-15; Mar. 14-16.	July 4, 25-28; Aug. 12, 15, 17, 21; Sept. 13, 16-18.	1900	Feb. 8, 14-16; Dec. 31..	June 20, 24-26, 28-30; July 8, 12, 21, 30; Aug. 1, 2, 15, 20, 29, 30.
1896	Jan. 3, 4, 25; Mar. 15, 16; Nov. 27-30.	June 12, 17, 28, 30; July 1, 5, 6, 9-14; Aug. 2, 3, 14-17, 19, 20, 29, 30; Sept. 1.	1901	Jan. 1, 2; Feb. 5, 6, 9-12; Dec. 14, 15.	June 29; July 3, 6-14, 16, 18-22, 24, 28, 31; Aug. 1, 5, 24, 28.
1897	Jan. 25-31; Nov. 28; Dec. 16, 17.	June 16, 22; July 1, 6, 7, 12, 16, 27-31; Aug. 24, 25; Sept. 2, 6, 7.	1902	Jan. 25-30; Feb. 2, 3...	June 9, 10, 24; July 15, 16, 24, 28-31; Aug. 1, 4, 5, 14, 16, 21; Sept. 4, 6.
1898	Jan. 26; Dec. 9, 30, 31.	June 21-23, 28; July 7, 21-23, 26; Aug. 4, 11, 12-14, 19-22, 25, 27-29; Sept. 20.	1903	Feb. 4, 7, 8, 13-16.....	June 27; July 6, 9, 12-15, 21-25, 27; Aug. 2-4, 7, 20, 21, 31; Sept. 1, 2.
1899	Jan. 1, 5-7, 30, 31; Feb. 1-9, 11-13, 23, 24, 26, 27; Mar. 27.	June 17, 18, 29, 30; July 10, 20, 22, 25; Aug. 14, 15, 21, 25, 27; Sept. 1, 3.			

WYOMING.

Southern Section: CARBON COUNTY. Station: RAWLINS.

H. A. KIRK, Observer.

[Established by Weather Bureau October, 1898. Latitude, 41° 45' N. Longitude, 107° 24' W. Elevation, 6,744 feet.]

Rawlins is situated in southern Wyoming, on a rolling plateau, nearly 7,000 feet above sea level, and is just east of what is known as "the Red Desert," a vast section of Wyoming extending from Rawlins on the east to Green River on the west and from the northern boundary of Sweetwater County on the north, to the Colorado line on the south, embracing an area of more than 11,000 square miles.

The instruments are located near the western edge of the town, just east of a bluff which runs along the western part of the town from north to south, and near a break in the bluff through which the Union Pacific Railroad passes. The shelter and rain gage are on a platform, about 4 feet above the ground, and nearly 50 feet away from any building.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	23	34	54	11	-20	27	14	1.0	8	0.3	0.9	10.5	7.1	W.
January.....	23	35	52	12	-20	25	21	0.7	8	0.1	1.2	7.1	3.5	SW.
February.....	19	30	49	8	-30	30	13	1.2	11	1.0	1.4	11.9	3.2	SW.
Winter mean.....	22	33		10				2.9	27	1.4	3.5	29.5		SW.
March.....	29	40	61	19	-6	35	24	1.6	11	0.6	3.0	14.9	7.5	SW.
April.....	42	54	73	29	9	44	40	1.6	10	2.9	1.2	3.2	2.8	SW.
May.....	51	65	82	36	18	54	46	1.4	10	0.2	1.2	1.3	2.1	SW.
Spring mean.....	41	53		28				4.6	31	3.7	5.4	19.4		SW.
June.....	60	77	93	43	28	64	54	1.1	5	0.1	2.2	0.0	0.0	SW.
July.....	66	85	102	47	33	70	63	1.3	5	2.0	2.0	0.0	0.0	SW.
August.....	65	83	99	47	32	67	61	0.4	7	0.1	0.4	0.0	0.0	SW.
Summer mean.....	64	82		46				2.8	17	2.2	4.6	0.0		SW.
September.....	53	71	90	36	18	57	51	1.1	5	0.9	1.0	0.0	T.	SW.
October.....	43	59	73	28	13	46	40	0.8	6	0.3	0.6	2.3	2.4	SW.
November.....	33	46	66	21	-4	36	30	0.7	4	0.7	0.9	6.3	4.5	SW.
Fall mean.....	43	59		28				2.6	15	1.9	2.5	8.6		SW.
Annual mean.....	42	57	102	28	-30			12.9	90	9.2	16.0	57.5	7.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD NOVEMBER 1 1898, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1898	Dec. 9-11, 30, 31.....	None.	1902	Jan. 24, 25, 28, 29.....	June 8, 9, 21-25; July 13, 14, 20-24, 27, 31; Aug. 1, 2, 25, 29; Sept. 3.
1899	Feb. 4-7, 10-12; Dec. 18-20.	July 9.	1903	Feb. 4-6, 12-15, 27, 28.	June 27-29; July 8, 11, 12, 14, 19, 20, 23, 24, 26-29; Aug. 2-5, 12, 13, 16-22, 31; Sept. 2.
1900	Feb. 7, 11, 13, 15, 16; Dec. 27, 28, 30, 31.	June 24-29; July 10-12, 30, 31; Aug. 2.			
1901	Feb. 4, 8, 10-12.....	July 7-23, 30, 31.			

WYOMING.

Western Section: UINTA COUNTY. Station: EVANSTON.

FRANK TUCKER, Observer.

[Established by the Weather Bureau April, 1898. Latitude, 41° 16' N. Longitude, 110° 59' W. Elevation, 6,959 feet.]

This station is located in the extreme southwestern part of the State, 4 miles from the western and 20 miles from the southwestern boundary lines of Wyoming. The instruments are located on the grounds of the Wyoming State Hospital for the Insane, and are under the supervision of an officer of that institution. The surrounding country is broken and hilly: 35 miles to the south is the summit of the Uinta Mountains of Utah, the peaks of which have an elevation of 12,000 feet, on which snow can be seen at all times of the year, while 18 miles west of the station is the summit of the Wasatch range, the peaks of which rise to 8,000 or 9,000 feet. The station is located on Bear River, which has its source on the north slope of the Uinta, and flows by a very circuitous route through Utah, Wyoming, and Idaho into Great Salt Lake.

The instruments, which consist of the maximum and minimum thermometers, shelter, and rain gage, are exposed on an open plat just west of the main building of the hospital.

The monthly mean temperatures were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.			
December.....	20	31	50	8	- 23	26	12	1.7	5	0.8	1.8	7.9	6.5	SW.	
January.....	21	32	48	9	- 21	24	18	1.0	4	0.6	1.5	8.8	7.0	SW.	
February.....	20	29	50	9	- 34	28	9	1.3	7	0.7	2.1	13.2	6.0	SW.	
Winter mean.....	20	31	.....	9	.....	.....	.....	4.0	16	2.1	5.4	29.9	.....	SW.
March.....	28	38	60	16	- 11	34	24	1.3	6	1.2	5.1	11.2	5.0	SW.	
April.....	37	49	74	25	8	38	35	1.4	8	1.9	1.8	8.2	8.0	SW.	
May.....	47	60	79	33	18	50	43	1.6	9	1.2	2.1	5.2	4.0	SW.	
Spring mean.....	37	49	.....	25	.....	.....	.....	4.3	23	4.3	9.0	24.6	.....	SW.
June.....	55	72	89	39	20	59	52	0.6	3	0.8	0.2	0.8	4.0	SW.	
July.....	62	80	93	43	28	65	58	0.7	4	1.1	0.5	0.2	0.5	SW.	
August.....	62	79	90	43	27	65	58	0.6	4	0.2	0.7	0.0	0.0	SW.	
Summer mean.....	60	77	.....	42	.....	.....	.....	1.9	11	2.1	1.4	1.0	.....	SW.
September.....	53	70	86	37	18	59	49	0.8	4	1.0	T.	2.5	10.0	SW.	
October.....	42	55	74	26	10	47	37	1.0	7	0.4	2.9	6.4	10.0	SW.	
November.....	32	44	63	19	- 10	35	27	1.1	5	0.6	0.9	8.4	14.0	SW.	
Fall mean.....	42	56	.....	27	.....	.....	.....	2.9	16	2.0	3.8	17.3	.....	SW.
Annual mean.....	40	53	93	26	- 34	.....	.....	13.1	66	10.5	19.6	72.8	14.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FROM JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1898	Dec. 2, 6, 10, 11, 29.....	June 17, 18; July 9, 13-15, 24-26, 28; Aug. 3, 10-12, 19, 24-26; Sept. 18, 19.	1902	Jan. 26, 28-30; Mar. 29; Dec. 3, 13-17.	June 23; July 14, 24, 25, 28, 30, 31; Aug. 1-5.
1899	Feb. 3-6, 11; Dec. 18-20.	July 9, 19-21.	1903	Jan. 30; Feb. 3-7, 13-16; Mar. 9, 18; Nov. 17.	July 12; Aug. 6, 16-19.
1900	Feb. 15, 16; Dec. 27, 30, 31.	June 20, 21, 27-30; July 7-11, 17, 30, 31; Aug. 1.			
1901	Jan. 1, 9, 10, 29; Feb. 8, 10-12; Dec. 13.	July 1, 6, 7, 12, 13, 15-23, 25-31; Aug. 1, 2, 13.			

WYOMING.

Southeastern Section: ALBANY COUNTY. Station: LARAMIE.

UNIVERSITY OF WYOMING, Observer.

[Established by the Weather Bureau September 1, 1890. Latitude, 41° 20' N. Longitude, 105° 30' W. Elevation, 7,194 feet.]

The station is maintained at the university grounds, which are situated on a rise of ground east of the city of Laramie. The city is situated on the Laramie Plains nearly 7,200 feet above sea level. The nearest hills of any considerable height are 9 miles to the east and rise about 1,500 feet above the level of the plains. The nearest mountain range is about 50 miles to the west, and the highest peaks of the range rise to a height of about 12,000 feet. The instruments consist of a mercurial barometer, a Richard's self-registering aneroid barometer, a Robinson's anemometer with Friez's quadruple register, a sling psychrometer, maximum and minimum thermometers, a Draper's self-recording thermometer, 6 soil thermometers, standard rain gage, and an evaporation tank with hook gage.

The monthly mean temperatures were obtained from the daily extremes.

Mean temperature and mean precipitation data are for the period from 1890 to 1903; the remainder of data for the period from 1893 to 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 9 a. m.	Relative, 9 p. m.		
												Average depth.	Greatest depth in 24 hours.				
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	P. ct.		
December.....	22	33	56	11	-27	31	14	0.4	4	0.1	1.1	3.9	5.0	66	58	SW.	
January.....	22	33	57	11	-30	28	16	0.2	3	T.	0.7	2.0	3.5	62	58	SW.	
February.....	20	31	55	9	-40	29	9	0.3	3	0.1	0.4	3.7	7.0	70	67	SW.	
Winter mean.....	21	32	.....	10	.....	.....	.....	0.9	10	0.2	2.2	9.6	.....	66	61	SW.
March.....	28	38	64	17	-21	32	24	0.9	6	0.8	1.5	8.6	37.5	68	62	SW.	
April.....	37	49	74	25	-10	40	34	1.2	6	0.3	0.2	13.8	21.9	71	65	W.	
May.....	47	60	78	34	16	51	44	1.4	7	0.3	2.9	0.2	1.5	65	59	SW.	
Spring mean.....	37	49	.....	25	.....	.....	.....	3.5	19	1.4	4.6	22.6	.....	68	62	SW.
June.....	57	71	91	42	26	62	52	1.1	6	0.5	0.9	0.2	1.0	66	53	S.	
July.....	62	77	92	48	33	68	59	1.3	7	0.3	1.2	0.0	0.0	53	48	S.	
August.....	62	77	91	47	32	63	60	1.1	7	1.1	1.8	0.0	0.0	57	51	SW.	
Summer mean.....	60	75	.....	46	.....	.....	.....	3.5	20	1.9	3.9	0.2	.....	59	51	S.
September.....	53	68	85	38	8	57	51	0.9	4	0.4	1.8	2.1	14.0	60	50	S.	
October.....	42	56	80	29	-5	45	38	0.8	5	0.3	0.3	3.5	6.9	65	52	SW.	
November.....	32	44	64	21	-21	37	24	0.3	2	0.1	1.1	2.2	5.0	55	52	SW.	
Fall mean.....	42	56	.....	29	.....	.....	.....	2.0	11	0.8	3.2	7.8	.....	60	51	SW.
Annual mean.....	40	53	92	28	-40	.....	.....	9.9	60	4.3	13.9	40.2	37.5	63	56	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°	Maximum 85° or above.
1894	Jan. 24; Feb. 22, 24; Dec. 26-28.	July 2, 10, 11; Aug. 12.	1899	Feb. 4-7, 11, 12, 22, 23, 25; Mar. 27; Dec. 18, 19, 21, 22.	June 29, 30; July 10, 21, 22, 25; Aug. 1, 2, 28; Sept 5, 30, 31.
1895	Jan. 27, 28; Feb. 7, 10-15.	July 27; Aug. 17.	1900	Feb. 8, 16, 17; Dec. 28, 31.	June 21, 22, 25-30; July 11-13.
1896	Feb. 1; Mar. 3, 15; Nov. 27-29.	None.	1901	Jan. 1; Feb. 5, 8, 9, 12, 13; Dec. 14.	June 29; July 7, 8, 13, 14, 16-21, 31; Aug. 1.
1897	Jan. 3, 4, 25-28; Dec. 3, 4, 15, 16, 18-21.	July 13, 29.	1902	Jan. 25, 26, 28, 29.....	June 23, 24; July 14, 15, 24, 28, 31; Aug. 1, 2, 3.
1898	Jan. 1, 25, 26; Mar. 23; Nov. 9; Dec. 8-11, 30.	June 22, 28-30; July 26, 28; Aug. 4, 18, 19, 26, 29, 30.	1903	Feb. 13-16.....	None.

WYOMING.

Southeastern District: LARAMIE COUNTY. Station: CHEYENNE.

W. S. PALMER, Section Director.

[Established, November, 1870. Latitude, 41° 8' N. Longitude, 104° 48' W. Elevation, 6,057 feet.]

Cheyenne is situated in the southeastern part of Wyoming on an undulating plateau.

The city is situated on Crow Creek, a small stream which rises in the mountains about 35 miles west of Cheyenne. The general slope of the surrounding country is toward the east; west of the city the plateau rises gradually till the mountains are reached about 25 miles west of the city, where the Union Pacific Railroad crosses the Divide at an elevation of about 8,000 feet.

The office has been in the Commercial Building since December 1, 1883. The instruments are exposed on the roof of the building.

Elevations of instruments above the ground: Thermometers, 56 feet; rain gage, 49 feet; anemometer, 74 feet.

The sunshine data are from seven years, 1897-1903; the humidity from fifteen years, 1889-1903. Remainder of data is from thirty-three years of observation, January 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage of possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	29	40	64	18	-24	36	19	0.4	5	0.2	0.0	5.4	8.0	56	0.91	49	0.95	180	62	NW.
January.....	25	36	64	14	-38	32	12	0.4	5	0.0	0.7	5.0	8.6	58	0.79	49	0.87	208	70	NW.
February.....	26	37	63	15	-28	34	12	0.5	6	0.1	0.3	7.6	5.3	65	0.84	56	1.04	179	60	NW.
Winter mean.....	27	38		16				1.3	16	0.3	1.0	18.0		60	0.85	51	0.95	189	64	NW.
March.....	32	44	77	21	-17	40	25	0.9	7	0.6	2.1	11.4	10.2	65	1.01	50	1.18	226	61	NW.
April.....	41	54	80	30	-2	48	34	1.6	9	0.2	2.1	10.8	13.0	67	1.47	46	1.69	249	62	NW.
May.....	52	64	88	39	20	56	46	2.2	12	2.5	2.8	3.0	3.9	70	2.22	46	2.39	267	59	NW.
Spring mean.....	42	54		30				4.7	28	3.3	7.0	25.2		67	1.57	47	1.75	247	61	NW.
June.....	61	75	97	47	28	67	57	1.5	9	0.1	1.4	0.8	8.0	66	2.88	41	3.07	294	65	NW.
July.....	67	82	100	53	38	72	63	2.0	10	0.8	6.4	0.0	0.0	65	3.49	38	3.44	316	69	S.
August.....	66	80	96	52	30	69	62	1.5	10	0.3	2.5	0.0	0.0	66	3.20	38	3.23	288	67	NW.
Summer mean.....	65	79		51				5.0	29	1.2	10.3	0.8		66	3.19	39	3.25	299	67	NW.
September.....	57	72	90	42	19	62	53	1.0	5	T.	2.1	0.5	3.3	60	2.20	34	2.31	267	71	NW.
October.....	46	59	83	33	-5	50	41	0.7	5	T.	0.3	3.0	7.0	59	1.50	42	1.65	242	70	NW.
November.....	35	47	75	23	-20	41	21	0.4	5	0.3	0.1	4.3	10.1	58	1.12	47	1.20	194	65	NW.
Fall mean.....	46	59		33				2.1	15	0.3	2.5	7.8		59	1.61	41	1.72	234	69	NW.
Annual mean.....	45	57	100	32	-38			13.1	88	5.1	20.8	51.8	13.0	63	1.80	45	1.92	242	65	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 23, 24; Feb. 11, 23; Dec. 27, 28.	July 9-11, 25, 26.	1899	Feb. 1-7, 10-12, 22; Mar. 27.	June 29, 30; July 22, 25.
1895	Jan. 27; Feb. 6, 7, 11-15.	July 26-28; Aug. 17; Sept. 13.	1900	Feb. 15; Dec. 30, 31...	June 25, 29, 30; July 12; Aug. 1, 2, 29.
1896	Nov. 27, 28.	July 13; Aug. 2.	1901	Dec. 13, 14.	June 29; July 7-9, 11-14, 16, 19, 20, 31; Aug. 1.
1897	Jan. 25-28.	July 7, 13, 28, 29.	1902	Jan. 25-27, 29; Feb. 1.	June 10, 24; July 15, 28, 31; Aug. 1, 3.
1898	Dec. 8, 9.	June 28; July 26, 28; Aug. 4, 21, 27, 29, 30.	1903	Feb. 13-15.	Aug. 3, 4.

COLORADO.

By FREDERICK H. BRANDENBURG,
District Forecaster.

COLORADO.

Geographical and topographical.—Colorado occupies a central position in the western half of the United States, between latitudes 37° and 41° north, and longitudes 102° and 109° west. It is almost a parallelogram in shape, its east, and also its west boundary being 275.7 miles in length, its northern, 365.7, while its southern is 387.6 miles. The State has an area of 103,478 square miles. Two-fifths of this area is highly mountainous, the remainder being plains, foothills, and high mesas; 42 per cent of the entire State is above 7,000 feet elevation. The plains region, or the eastern two-fifths of the State, is crossed by a ridge which forms the watershed between the South Platte and the Arkansas rivers. Beginning in the foothills north of Pikes Peak, this divide extends eastward, gradually dying away in the eastern border counties. The lowest point in the State—Holly, on the Arkansas River—has an elevation of 3,386 feet, while Julesburg, on the South Platte, elevation 3,458 feet, is the lowest point in the northeastern counties.

The one hundred and seventh meridian marks the location of the Continental Divide in the extreme northern as well as in the extreme southern part of the State. In the north this watershed is known as the "Park Range;" its course is southward for a short distance, thence easterly to Longs Peak, thence southwestward, forming the eastern boundary of Grand and Summit counties and the northern boundary of Lake County; then the western boundary of Lake and Chaffee counties, where it is known as the Sawatch Range. From the most southerly point in Chaffee County the course of the divide is due southwest to San Juan County, thence southeastward to the State line, the Cochetopa hills being the divide until the San Juan Mountains are reached. For four-fifths of the distance the summit of the divide is above timber line. Though this area above timber line is considerable, it is not nearly so great as is to be found on the detached ranges and spurs.

The foothills rise a few miles east of a north-and-south line drawn through the center of the State. In the north, high mountains occupy the region to the westward of this line for about 75 miles, but farther to the south these ranges widen out west of Pikes Peak to about 135 miles. At a point not far from the center of the State the Sangre de Cristo Range begins and extends southward beyond the New Mexico line. The San Juan, a range of great altitude, occupies a large area in the southwestern part of the State.

A prominent feature of the mountain region is the number of large upland valleys or parks. The principal ones, North, Middle, South, and San Luis, lie nearly in a north-and-south line, just west of the Front Range. Of these only one, Middle Park, is west of the Continental Divide, which forms its northern and eastern boundaries; its surface is undulating; elevation about 8,000 feet. North Park opens toward the north, elevation generally about 8,000 feet. South Park lies in the center of the State, elevation 8,000 to 10,000 feet, and is surrounded by very high mountains; its surface is nearly flat. San Luis Park, the most southerly, is larger than North, Middle, and South parks combined; it is an immense elliptical basin, whose surface is remarkably flat—at one time doubtless the bed of an inland sea. The western fifth of the State is occupied by high plateaus, or mesas—deep gullies, or arroyas, being a feature, with many cliffs and hills.

Of the peaks above 14,000 feet elevation, the altitudes of 32 have been determined. Mount Massive, near Leadville, with an altitude of 14,424 feet, is the highest, and Mount Elbert, 14,421 feet, is next. The average height of timber line is 11,526 feet, with extremes of 10,410 feet on Sierra Blanca, and 12,117 feet on Mount Harvard.

A number of important rivers rise in the State. The Rio Grande has its source in the San Juan Mountains, while the Arkansas and the South Platte of the eastern slope, and the Gunnison and the Grand, important branches of the Colorado, rise but a few miles apart near the center of the State.

Controlling factors.—Nearly all the variations of a continental climate are to be found within the limits of Colorado, and while these variations are due to the combined operations of a number of causes producing a complex effect, the following may be considered as among the important controlling influences:

Low latitude: A position south of the common track taken by storms.

Location: In the interior of the continent, remote from the ocean.

Normal pressure distribution, especially with reference to the influence exerted by the winter high of the Great Basin, whose place is taken during the warmer half of the year by an area of low pressure.

Altitude and diversified topography—features which greatly modify the effects of the low latitude and remoteness from the sea.

It is manifest that the position of the State, just midway between the Republic of Mexico and the British Possessions, is favorable to the offsetting of the effect on temperature of the high average altitude. Moreover, the usual track of storms lies some distance to the northward, and the State is therefore generally in the southerly, the warm and dry, quadrants of the low areas that move eastward with great regularity, and escapes in part the attendant precipitation of moisture, the high wind movement, and the sharp fluctuations in temperature.

Considering the great distance from the Pacific, and the high mountain ranges which the prevailing westerly winds must cross, it is not surprising that low humidity, attended by a great range of temperature, should be a characteristic feature.

Though distant also, the influence of the Gulf of Mexico is appreciable, but only to a varying extent. It is most marked during the summer months, when there is a general stagnation in the movement of northern low-pressure areas, affording sufficient time for moisture to be brought to the eastern slope. That this is true is apparent from the increased precipitation east of the Continental Divide during the warmer half of the year.

With the advance of winter the pressure gradually increases over the Great Basin until an extensive high-pressure area is developed. Remaining practically unchanged for months, it exerts an important influence on the winter climate of Colorado, the character depending on location, whether east or west of the Continental Divide. To the west of the divide persistent cold for the latitude and altitude prevails, especially in San Luis Park, the upper Gunnison Valley and northwestern counties. Clear skies and a still atmosphere favor rapid radiation, and the topography facilitates a steady flow night after night of the chilled air from the surrounding high slopes into these valleys. On the eastern slope at such times the prevailing winds are westerly, or over the Continental Divide. The air being warmed by compression during the descent to the foothills and plains region, the mean temperature is raised materially, and the capacity of the air for moisture is increased; or, in other words, there prevails in the eastern half of the State a long succession of relatively dry, warm, and bright sunshiny days. For the summer months the normal charts show low pressure over the Great Basin and western Colorado, with little or no precipitation. On the eastern slope the suction exerted by the western depression is sufficient to give to the half of the State east of the Continental Divide many periods of easterly winds, and as the air is drawn up the mountain slopes it is chilled by elevation, and there is precipitated during the warmer half of the year practically five-sevenths of the annual amount of moisture.

The winter and the summer distribution of pressure over the Great Basin are intimately associated with the surrounding physical conditions—in fact it may be said that the permanency of these areas is a consequence of the high mountain barrier extending far to the north and south, thus intercepting the eastward drift of the lower atmosphere. It should be remembered that nearly one-half of the atmosphere lies below the summits of the mountain masses that constitute the Continental Divide and its spurs, and it is owing to this fact that unlike conditions so often prevail simultaneously on opposite sides of the same mountains. The difference in temperature is very marked at times during the colder half of the year, and especially marked when cold waves, originating north of Montana, sweep southward along the eastern edge of the mountains. The abnormal cold being generally confined to a comparatively thin stratum resting on the ground, the cold wave rarely extends westward over the mountain barrier. As a matter of fact, during these periods of low temperature, the adjacent high-altitude stations experience relatively moderate temperatures, which conditions, if not already in existence in the western valleys, are soon in evidence.

As might be expected from the difference in altitude of more than 2 miles, which exists between the central mountain region and the valleys along the western and eastern borders, a great variety of climatic conditions obtain. In the high districts we find mean annual temperatures as low as 33°, against 54° in the lowlands, and between these every variety of temperature, varying with the altitude and exposure to the winds.

The rainfall and its distribution is even more varied, depending as it does on location with reference to the high mountain masses. We find mean annual rainfalls running from 6 inches in San Luis Park to more than 40 inches in the central districts.

Temperature.—Considered from the point of mean temperature alone, Colorado may be divided into five zones, as follows:

The zone of 50° or higher, which includes a small area in the valley of the Grand and Gunnison in the extreme western part of the State; the valley of the Arkansas as far west as the foothills; the southeastern border counties; a narrow strip bordering on northwestern Kansas, and an area east of the foothills, which includes Denver County and parts of Boulder and Adams counties.

The zone of 45° to 50°, or the valleys of moderate elevation and the upland plains, includes the Arkansas-Platte divide, a narrow belt running north and south adjacent to the eastern foothills, the middle portions of the Grand and Gunnison valleys, and the valley of the Las Animas in the southwestern part of the State.

The zone of 40° to 45° includes San Luis Park, the foothills region, and the northwestern counties.

The zone of 35° to 40° includes North, Middle, and South parks, and generally the regions between 8,000 and 10,000 feet elevation.

The zone of 35° and lower includes the higher mountain masses, parts of the Continental Divide, and the narrow valleys near the center of the State in Lake and Summit counties.

Winter.—The mean temperature of winter ranges from 35° at Canon City to 11° at Gunnison. For the southeastern counties, the Arkansas Valley, including Colorado Springs, and for a considerable area in the vicinity of Denver, the mean temperature is slightly above 30°, while the western valleys, the eastern foothills, the Arkansas-Platte divide, and the north-eastern counties have means between 25° and 30°. The mean for San Luis Park is slightly above 20°, while in the remainder of the parks and higher mountain districts the means average below 20°.

The mean maxima for this season range between 40° and 49° throughout the region east of the mountains, and values between 40° and 42° prevail in Costilla, La Plata, and Mesa counties. In the central mountain region, in Summit, and in Gunnison County 29° is the average.

The mean minima range from 12° to 18° east of the mountains, and from 14° to 18° in the lower western valleys. For San Luis Park the values are 4° to 6°, and, taking Breckenridge and Gunnison as representative of the conditions in the mountain regions of the western slope, we find the means for the season to be -1° and -7°, respectively.

Summer.—For this season the mean temperatures range from 76° in the lower part of the Arkansas Valley to 50° near the Continental Divide in Park County. Means of 70° or higher are common to the valleys of the eastern slope, and also prevail in the lower parts of the Grand and the Gunnison valleys. San Luis Park has a mean of 63°, and slightly higher values are common in the northwestern counties. In the valleys of the central mountain region the means are generally between 50° and 55°.

The mean maxima are above 90° only in the extreme southeastern part of the State. From 91°, the highest, the means sink to 68° in the central mountain region. Mean maxima above 80° are common to the valleys and plains, and prevail to a considerable extent in the parks and in the mountain districts with southern exposures.

The mean minima range between 61° in the lower western valleys and 35° in the central mountain region. East of the mountains they are in the fifties, and similar values obtain in the middle portions of the Grand and Uncompahgre valleys; in the parks and northwestern counties they range between 41° and 46°, while in the central mountain region they are below 40°.

The mean temperatures for spring and autumn, and also the mean maxima and minima, correspond closely with the annual values that have already been given.

Maximum temperatures above 90° rarely, if ever, occur in the highest valleys and parks, and on the average are noted only three times a year in San Luis Park. Leaving out the Arkansas-Platte divide, where they are noted nine times a year, the number of days with 90° or higher east of the mountains increases from six at Cheyenne, on the northern border, to sixty-six in the extreme southeastern counties. In the western valleys the number varies from sixteen to fifty, the latter being the value for the lower Grand and Gunnison valleys.

Minimum temperatures below 32° are very common; their occurrence fewer than one hundred and fifty times a year is confined to the Arkansas Valley and parts of the South Platte, Grand, and Uncompahgre valleys. In the northwestern counties and San Luis Park they occur from two hundred and five to two hundred and twenty-seven times a year, and more than two hundred and fifty times in the higher mountain districts. At Breckenridge the average is two hundred and eighty-three times.

The annual range of temperature is large in all parts of the State. The greatest observed at any station is 143°, which occurred at Greeley in 1899, when the extremes were 98° and -45°.

A great daily range of temperature is also a characteristic feature in all parts of the State. The average is generally between 25° and 29° throughout the eastern valleys and plains and in the lower western valleys, while 30° to 38° are the averages that obtain in the mountain districts and northwestern counties.

The mean diurnal variability, or the average difference of the mean temperature from day to day, regardless of the fact whether the temperature rises or falls, is much greater on the eastern than on the western slope, as will be seen from a consideration of the data of the representative stations. For January at Denver this mean is 7.4° and at Pueblo 7.1°, while at Grand Junction it is only 3.5°; for April it is 5.8° at Denver, 5.3° at Pueblo, and 4.8° at Grand Junction; for July, 3.5° at Denver, 3.2° at Pueblo, and 3.0° at Grand Junction; for October, 5.3° at Denver, 4.8° at Pueblo, and 3.1° at Grand Junction.

The variability of the maximum and minimum temperatures, respectively, at these stations is: For January at Denver, 8.7° and 6.6°; at Pueblo, 9.1° and 7.7°; at Grand Junction, 3.7° and 5.0°. For April, at Denver, 8.4° and 6.0°; at Pueblo, 7.1° and 6.0°; at Grand Junction, 5.9° and 5.5°. For July, at Denver, 6.1° and 3.5°; at Pueblo, 5.2° and 3.4°; at Grand Junction, 3.8° and 3.8°. For October, at Denver, 7.3° and 5.3°; at Pueblo, 7.6° and 6.0°, and at Grand Junction, 4.1° and 3.9°.

The highest maximum temperatures in the mountain districts range between 90° and 96°, but in the valleys of the western slope, in the eastern border counties, and in the valleys of the eastern slope the highest readings are generally between 100° and 105°, with the extreme maximum, 111°, near the southeastern border.

The lowest minimum temperatures recorded in the extreme western and southwestern valleys are -16° at Grand Junction, and -18° at Durango. In the eastern valleys and plains region, readings from -25° to -29° have been observed, while -38° and -45° have been noted in the plains region just east of the northern foothills. For San Luis Park the lowest readings have ranged from -26° to -34°, and in the mountain districts and northwestern counties from -37° to -44°. It should be borne in mind, however, that these high and low temperatures are the extreme values touched in the entire period covered, and therefore are of short duration and infrequent occurrence.

Frost.—As might be expected, killing frosts occur every month in the year in the higher valleys contiguous to the Continental Divide. In the agricultural districts, owing to the varied topography, difference in elevation and location, whether east or west of the Continental Divide, there is an entire absence of uniformity. This will be apparent from a consideration of the following: On the western slope at Grand Junction the average date of the last killing frost of spring and the first killing frost of autumn is April 11 and October 28, respectively; and in the northwestern part of the State, at Meeker, the dates are June 7 and September 12, respectively. On the southern slope, at Saguache, in San Luis Park, the average dates are May 24 and September 17; on the eastern slope, at Fort Collins, May 13 and September 21; at Denver, May 7 and October 4, and at Pueblo, April 28 and October 25, respectively.

Precipitation.—Owing to the varied topography, the trend of the backbone of the continent, and other high mountain masses with respect to the rain-bearing winds, it is manifest that precipitation in Colorado is characterized by great irregularity as regards the amount as well as the seasonal distribution. As a rule, the frequency and amount of precipitation is greatest on the western slope of the Continental Divide and on the western slopes of the detached mountain ranges, and least in those parks surrounded by high mountains, and the narrow valleys whose trend is the same as that of the rain-bearing winds.

The greatest annual precipitation occurs in the northern part of Gunnison County at an elevation above 10,000 feet. Between 20 and 25 inches is the average for the western slope of the Continental Divide, in the north-central counties, over the greater part of the San Juan Range, and locally in the south-central counties in the vicinity of the Spanish Peaks. Amounts ranging between 15 and 20 inches occur on the average in the northern half of the State for some distance west of the mountains, while on the eastern slope this amount occurs in a long narrow belt, stretching north and south, whose eastern limits are the foothills. Somewhat more than 15 inches is also the average in the counties bordering on Kansas and Nebraska. Between this eastern belt and the foothills there is a broad area where the annual precipitation is generally between 11 and 13 inches. Less than 10 inches is the average in the valleys along the western border, thence increasing somewhat up the narrow valley of the Gunnison. The least precipitation, between 6 and 8 inches, occurs in the central part of San Luis Park.

There is a wide range between the amount of precipitation that occurs in the driest and in the wettest year. For the wettest year the amount is generally from two to three times that which occurs in the driest year, and as much as four times as great over areas in the northeastern quarter of the State.

Winter.—In the plains region, in the extreme western border counties, the parks east of the Continental Divide, and the middle portions of the Gunnison and Arkansas valleys, the precipitation of winter is less than 2 inches. From these small values it increases slowly on the eastern slope with the higher altitudes, reaching a maximum slightly above 5 inches on the eastern slope of the Sangre de Cristo Range, in Huerfano and Las Animas counties. On the western slope the increase with higher altitudes is more rapid, varying, however, according to the location, from 5 to 16 inches.

Spring.—For this season the amounts are greater than for winter in all parts of the State except in the southwestern counties, the increase being most pronounced east of the Continental Divide, where the values are double or treble those of winter.

Summer.—The precipitation is local in character and comes in the form of thunder showers. West of the Continental Divide, as compared with spring, there is a decrease generally, while east of that barrier there is a further increase in the eastern border counties, along the Arkansas-Platte divide, and in the south-central counties, the values ranging from slightly more than 4 inches in the north-central counties and the Arkansas Valley to about 8 inches in the eastern border counties, along the Arkansas-Platte divide, and the eastern slope of the Sangre de Cristo range.

Autumn.—For this season there is a decrease to less than 2 inches over the greater part of the eastern slope and in the San Luis Park, while over the remainder of the State the amounts are generally between 2 and 4 inches.

Even at moderate elevations the precipitation during the entire period from October 1 to May 1 generally comes in the form of snow. At low altitudes the snow usually melts as it falls or remains for only a short time. On the other hand, stations in the vicinity of timber line are occasionally visited by snowstorms in midsummer, with falls ranging from 1 to 6 inches.

During the period from April to September, inclusive, thundershowers are of frequent occurrence; in fact, rain unattended by thunder is the exception, and thunderstorms without appreciable rain are common. The thunderstorms are rarely attended by destructive falls of hail. In this regard there is a wide difference, however, in seasons and localities. Destructive hailstorms and heavy downpours or cloud-bursts are noted oftener on the eastern than on the western slope. They are local in character and are confined principally to the foothill districts.

Snow.—The annual snowfall is least in the Arkansas Valley, 21 inches being the average; for San Luis Park the average is 25 inches; the Grand and Uncompahgre valleys, 28 inches; the eastern border counties, 33 inches; the Arkansas-Platte divide, 49 inches; the north-central counties, 51 inches; the extreme southwestern counties, 81 inches, the south-central counties and eastern slope, 96 inches each, while for the western slope of the Continental Divide the average is 220 inches.

Colorado, in common with a large part of the Rocky Mountain region, is occasionally visited by long dry spells. Since the distribution of pressure which brings about this condition is generally widespread, these dry periods prevail simultaneously over extensive areas. The following from the Denver records may therefore be taken as showing approximately for the eastern half of the State the frequency and duration of such spells, during which the total precipitation does not exceed 0.01 inch: In a period of thirty-three years there have been during autumn 42 such spells, ranging from 20 to 51 days each; during winter, 25, ranging from 20 to 58 days each; during spring, 10, ranging from 20 to 28 days each, and during summer, 8, ranging from 24 to 50 days each.

Days with 0.01 inch or more precipitation: The average for the State is 64 days, with a maximum of 100 days in the central mountain region and a minimum of less than 40 days in the northern part of San Luis Park. West of the Continental Divide precipitation is least frequent (14 days) in autumn and most frequent (20 days) in spring. East of the Divide it is also least frequent in autumn, averaging 11 days; for winter the average is 12 days, for spring 20 days, and for summer 23 days. In the San Luis Park precipitation occurs on 18 days in summer, as against only 9 in winter. Except in the mountain region, during winter and spring, the days with precipitation are for the most part days with thundershowers or light falls of snow, lasting only a few hours.

Cloudiness.—On the average, 181 days, or 50 per cent, are clear; 119 days, or 33 per cent, partly cloudy, and 65 days, or 17 per cent, are cloudy.

Dense fog.—Fog occurs about once a year in the western counties and three times a year a short distance from the eastern foothills. It occurs somewhat more frequently in the eastern border counties.

Winds.—The prevailing directions are of course greatly modified by the topography. West is, however, the prevailing direction. Normally there is great regularity in the duration of the wind from certain directions, the phenomenon of mountain and valley winds being common to the high districts and narrow valleys of the western part of the State. This persistency of winds from a certain direction during the day and from another direction during the night is also common to the plains region. At Denver, for example, the wind sets in from the northeast and continues to blow up the valley until about 8 p. m. After that hour until about 10 a. m. the wind blows down the valley, or from a point somewhat west of south. Similar conditions prevail in the Arkansas Valley. The day wind, however, is from the easterly, and the night wind from the westerly quadrant, practically to the Kansas border.

At Grand Junction the average velocity is 5.2 miles per hour; at Montrose, 6; at Pueblo, 7; at Denver, 7.3, and at Las Animas, 7.9 miles. Along the northern and eastern borders the average velocity is approximately 10 miles per hour. At Grand Junction the velocity of the wind reaches 40 miles or over about once a year, at Denver about ten times, and at Pueblo fourteen times. The high winds come principally from the western quadrant in the western as well as in the eastern part of the State. West of the Continental Divide these winds are relatively cold and rain bearing, while on the eastern slope they are dry and notably warm, especially during the colder half of the year.

Relative humidity.—The annual amount is greatest along the eastern border of the State, where it averages about 60 per cent. Just east of the foothills the mean values range between 48 and 50 per cent and in the extreme western counties between 46 and 50 per cent. At Grand Junction it is greatest, 63 per cent, during the winter, but for the other seasons the percentage is below the annual, with a minimum of 33 per cent for summer. Along the eastern slope of the mountains the humidity is also greatest during winter, except in the extreme north, the maximum mean values ranging between 54 and 57 per cent, while the least is noted during autumn, the values ranging between 46 and 50 per cent. At Pueblo, however, the value is the same for the spring as for the fall. Along the eastern border the greatest is also noted during winter, while the least occurs during the spring months. The values are based on observations made at 6 a. m. and 6 p. m. For 6 p. m. the annual values average about 10 per cent below the mean of both observations. When high temperatures prevail, the relative humidity is very low. The temperature of evaporation, as shown by the wet-bulb thermometer, averages 25° or more lower than the air temperature, and frequently the difference reaches 30° or 35°. Evaporation is therefore rapid and cooling. The prevailing lack of moisture in the air is also favorable to increased intensity of the direct rays of the sun. Solar temperatures, obtained from a black-bulb thermometer in vacuo, exposed to the direct rays of the sun at midday, average during the different seasons about 60° higher than the air temperatures.

Sunshine.—For the plains region and the western valleys there is annually between 65 and 75 per cent of the possible, which is also the average for these localities during winter. For the other seasons it is 61 to 71 per cent during spring, 67 to 80 per cent during summer, and 69 to 79 per cent during autumn. There are few days without sunshine. The record of the Denver station may be taken as showing approximately the amount of sunshine in the belt lying east of the foothills. One day a month without sunshine is the average; two days, the highest average, is for April, as against none in August. Only three times in thirteen years has the monthly amount fallen below 50 per cent—May, 1891, May, 1892, and June, 1903. On the other hand, the monthly average is occasionally as high as 89 per cent. The highest monthly average is 72 per cent for January and the lowest 61 per cent for May.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	Region or district.	Page.	County.	Station.	Region or district.	Page.
Adams (<i>see</i> Denver).....		North central		Lake (<i>see</i> Breckenridge).....		Central mountain.	
Arapahoe (<i>see</i> Denver).....		do.		La Plata.....	Durango.....	Southwestern valleys.	882
Archuleta (<i>see</i> Durango).....		Southwestern valleys.		Larimer.....	Fort Collins.....	North central	865
Baca.....	Blaine.....	Southeastern plains.	885	Las Animas.....	Walden.....	North Park	864
Bent.....	Las Animas.....	E a s t e r n plains.	880	Lincoln (<i>see</i> Hamps).....	Hoehne.....	South central	884
Boulder (plains) (<i>see</i> Denver).....		North central mountain.		Logan.....	Leroy.....	E a s t e r n plains.	866
Chaffee.....	Salida.....	Central mountain.	878	Mesa.....	Grand Junction.....	Northeastern plains.	
Cheyenne (<i>see</i> Las Animas).....		E a s t e r n plains.		Mineral.....		Western valleys.	873
Clear Creek (<i>see</i> Breckenridge).....		North central mountains.		Montezuma (<i>see</i> Durango).....		Southwestern mountain.	
Conejos (<i>see</i> San Luis).....		San Luis Park.		Montrose.....	Montrose.....	Southwestern valleys.	
Costilla.....	San Luis.....	do.	883	Morgan (<i>see</i> Leroy).....		Western valleys.	876
Custer (<i>see</i> Hoehne).....		South central		Otero (<i>see</i> Las Animas).....		Northwestern plains.	
Delta (<i>see</i> Grand Junction).....		Western valleys.		Ouray.....		E a s t e r n plains.	
Denver.....	Denver.....	North central	871	Park (<i>see</i> Gunnison).....		Southwestern mountain.	
Dolores (<i>see</i> Durango).....		Southwestern valleys.		Phillips (<i>see</i> Leroy).....		Central mountain.	
Douglas (<i>see</i> Hamps plains region).....		Arkansas-Platte divide.		Pitkin (<i>see</i> Breckenridge).....		Northeastern plains.	
Eagle (<i>see</i> Breckenridge).....		Central mountain.		Prowers (<i>see</i> Las Animas).....		Central mountain.	
Elbert.....	Hamps.....	Arkansas-Platte divide.	875	Pueblo.....	Pueblo.....	E a s t e r n plains.	879
El Paso.....	Colorado Springs.....	do.	874	Rio Blanco.....	Meeker.....	do.	867
Fremont: Plains (<i>see</i> Pueblo).....		E a s t e r n plains region.		Rio Grande (<i>see</i> San Luis).....		Northwestern plateau.	
Mountain (<i>see</i> Salida).....		Central mountain.		Routt.....	Pagoda.....	San Luis Park.	
Garfield.....	Silt.....	Western valleys.	869	Saguache.....	Saguache.....	Northwestern plateau.	868
Gilpin (<i>see</i> Breckenridge).....		North central mountain.		San Juan.....		San Luis Park.	881
Grand (<i>see</i> Breckenridge).....		do.		San Miguel (<i>see</i> Montrose).....		Southwestern mountain.	
Gunnison.....	Gunnison.....	Central mountain.	877	Sedgwick (<i>see</i> Leroy).....		Western valleys.	
Hinsdale.....		Southwestern mountain.		Summit.....	Breckenridge.....	Northeastern plains.	
Huerfano (<i>see</i> Hoehne).....		South central		Teller (<i>see</i> Salida).....		Central mountain.	870
Jefferson: Plains (<i>see</i> Denver).....		Central mountain.		Washington.....	Cope.....	do.	
Mountains (<i>see</i> Salida).....		do.		Weld (<i>see</i> Fort Collins).....		E a s t e r n plains.	872
Kiowa (<i>see</i> Las Animas).....		E a s t e r n plains.		Yuma (<i>see</i> Cope).....		North central	
Kit Carson (<i>see</i> Cope).....		do.				E a s t e r n plains.	

STATE SUMMARY.

Station.	Number.	Temperature.									
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number days with—		
									Maximum above 90°.	Minimum below 32°.	
Walden.....	1	° F. 38	° F. 54	° F. 22	° F. 94	August, 1900.....	° F. -39	February, 1899.....	2	240	
Fort Collins.....	2	47	62	31	100	August, 1902.....	-34	do.....	19	179	
Leroy.....	3	48	62	35	104	July, 1901.....	-28	do.....	31	154	
Meeker.....	4	43	61	25	103	July, 1900.....	-37	do.....	19	205	
Pagoda.....	5	42	59	24	99	July, 1896.....	-39	do.....	20	227	
Slit.....	6	48	63	33	101	August, 1902.....	-25	February, 1895.....	33	166	
Breckenridge.....	7	33	48	17	90	August, 1903.....	-37	February, 1899.....	0	283	
Denver.....	8	50	63	37	105	August, 1878.....	-29	January, 1875.....	22	137	
Cope.....	9	50	64	36	105	July, 1894.....	-26	February, 1899.....	41	147	
Grand Junction.....	10	53	65	40	104	June, 1900.....	-16	January, 1898.....	50	128	
Colorado Springs.....	11	47	60	34	98	August, 1902.....	-24	February, 1899.....	3	157	
Hamps.....	12	46	62	30	99	do.....	-25	do.....	9	187	
Montrose.....	13	48	62	36	100	July, 1886.....	-20	January, 1888.....	16	142	
Gunnison.....	14	37	56	18	96	June, 1898.....	-44	February, 1895.....	1	252	
Salida.....	15	46	64	28	100	August, 1902.....	-26	December, 1899.....	14	201	
Pueblo.....	16	52	66	37	104	do.....	-27	February, 1899.....	42	148	
Las Animas.....	17	52	69	34	103	July, 1885.....	-31	do.....	60	169	
Sagauche.....	18	43	59	27	97	July, 1900.....	-26	December, 1898.....	2	200	
Durango.....	19	47	63	31	99	August, 1902.....	-18	February, 1899.....	11	110	
San Luis.....	20	43	61	25	98	August, 1896.....	-34	February, 1893.....	4	221	
Hoehne.....	21	50	68	33	103	August, 1902.....	-29	January, 1901.....	29	169	
Blaine.....	22	54	71	37	111	July, 1903.....	-26	February, 1899.....	66	151	

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Walden.....	1					Inches. 9.2	Inches. 3.8	Inches. 2.5	Inches. 1.4	Inches. 1.
Fort Collins.....	2	Sept. 21	May 13	Sept. 7	June 5	14.6	5.8	4.6	2.6	1.6
Leroy.....	3	Sept. 26	May 5	Sept. 12	May 26	15.0	5.7	5.8	1.7	1.8
Meeker.....	4	Sept. 12	June 7	Aug. 23	July 4	15.9	4.3	4.0	4.0	3.6
Pagoda.....	5	Sept. 8	June 16	Aug. 20	July 19	19.7	5.9	4.0	4.1	5.7
Slit.....	6	Sept. 25	May 18	Aug. 27	June 19	11.8	3.4	3.0	3.2	2.2
Breckenridge.....	7					26.8	8.8	6.6	4.8	7.6
Denver.....	8	Oct. 4	May 7	Sept. 12	June 6	13.7	5.4	4.4	2.2	1.7
Cope.....	9	Oct. 3	Apr. 27	Sept. 11	May 22	18.4	7.7	7.4	1.8	1.5
Grand Junction.....	10	Oct. 29	Apr. 11	Sept. 14	Apr. 30	7.7	2.2	1.9	2.2	1.4
Colorado Springs.....	11	Sept. 28	May 1	Sept. 12	May 23	14.3	4.5	7.0	2.0	0.8
Hamps.....	12	Sept. 21	May 16	Sept. 6	June 8	13.1	4.8	6.1	1.2	1.0
Montrose.....	13	Sept. 29	May 10	Sept. 8	May 28	9.3	2.5	2.2	2.4	2.2
Gunnison.....	14					8.9	2.2	2.9	1.9	1.9
Salida.....	15	Sept. 7	May 30	Aug. 25	July 7	9.7	3.0	3.7	1.7	1.3
Pueblo.....	16	Oct. 15	Apr. 28	Sept. 12	May 23	11.6	3.9	4.8	1.5	1.4
Las Animas.....	17	Oct. 6	May 2	Sept. 7	May 19	11.4	3.6	5.1	1.7	1.0
Sagauche.....	18	Sept. 17	May 24	Sept. 10	July 6	7.1	1.4	3.7	1.3	0.7
Durango.....	19	Sept. 22	May 13	Aug. 24	June 12	15.9	3.3	3.9	4.7	4.0
San Luis.....	20	Sept. 11	June 9	Aug. 25	July 5	11.9	3.1	4.1	2.6	2.1
Hoehne.....	21	Oct. 2	May 10	Sept. 13	July 4	13.0	3.8	4.8	2.6	1.8
Blaine.....	22	Oct. 6	May 3	Sept. 7	May 22	15.3	4.1	6.9	2.6	1.7

COLORADO.

North Park: LARIMER COUNTY. Station: WALDEN.

J. K. P. McCALLUM, Observer.

[Established August, 1887; discontinued July, 1902. Latitude, 40° 45' N. Longitude, 106° 16' W. Elevation, about 8,000 feet.]

Walden is situated in the center of North Park, in the west end of Larimer County. The park is surrounded by mountain ranges. The Continental Divide is on the south and west, and the Medicine Bow Range on the east side, while stretching almost entirely across the north end is the low range known as Independence Mountain, beyond which is seen the snow-covered Gold Mountain in the State of Wyoming.

The station was about half a mile due north of Walden, on the north bank of the creek, and near the county road. After June, 1901, the Weather Bureau thermometers were exposed in a standard shelter, 6 feet above the ground. The rain gage was 40 feet southeast of the thermometers and about 4 feet above the ground. Prior to the use of an instrument shelter, the thermometers were kept in a well-covered shelter, on the north side of a one-story house.

The monthly mean temperatures were computed from the daily extremes.

Monthly and annual mean temperatures and highest and lowest monthly means are for the periods August, 1887, to October, 1888, and January 1, 1897, to July 31, 1902; monthly mean precipitation and total amounts for the driest and wettest years for the periods August, 1887, to February, 1889; and January 1, 1897, to July 31, 1902, an incomplete record. The remaining data are for the period January 1, 1897, to July 31, 1902.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	15	28	50	2	-35	19	6	0.5	11	0.3	0.2	6.1	10.0	SW.
January.....	16	30	50	2	-34	19	11	0.3	5	0.2	0.2	6.4	5.0	SW.
February.....	20	32	50	6	-30	25	13	0.7	6	0.7	1.3	9.4	6.0	SW.
Winter mean.....	17	30		3				1.5	16	1.2	1.7	21.9		SW.
March.....	25	38	54	12	-21	31	22	1.1	7	0.3	1.0	14.4	8.0	SW.
April.....	37	50	74	21	-9	43	34	1.5	7	1.9	2.2	12.1	8.0	SW.
May.....	47	64	83	30	15	49	43	1.2	8	0.9	1.9	1.8	3.0	SW.
Spring mean.....	36	51		21				3.8	22	3.1	5.1	28.3		SW.
June.....	55	74	92	36	17	59	53	0.6	5	0.3	0.3	0.3	1.5	SW.
July.....	61	81	93	40	21	64	56	0.8	4	0.1	1.4	0.0	0.0	SW.
August.....	59	80	94	40	21	62	57	1.1	9	0.5	1.9	0.0	0.0	SW.
Summer mean.....	58	78		30				2.5	18	0.9	3.6	0.3		SW.
September.....	52	71	85	32	15	54	48	0.4	4	0.9	0.1	T.	0.1	SW.
October.....	40	56	75	22	3	42	36	0.4	4	0.1	1.2	1.2	1.0	SW.
November.....	29	44	60	16	-4	35	19	0.6	3	0.2	1.5	3.4	3.3	SW.
Fall mean.....	40	57		23				1.4	11	1.2	2.8	4.6		SW.
Annual mean.....	38	54	94	22	-30			9.2	67	6.4	13.2	55.1	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1902.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1897	Jan. 3-6, 18, 19, 27, 28, 31; Feb. 13, 14, 26; Mar. 13; Dec. 3-5, 18-20, 22, 23, 31.	July 1, 13, 21, 22, 25, 29-31; Aug. 1, 30.	1900	Jan. 1, 2, 7, 10, 19, 21-23, 25, 26, 28; Feb. 8, 16-18; Dec. 28, 29, 31.	June 20-30; July 8-14, 17, 18, 21, 27, 30, 31; Aug. 1-3, 8, 14, 28-30.
1898	Jan. 1, 11, 13, 20, 21, 24-27; Mar. 22, 23; Dec. 8-13, 15-19, 21-23, 30, 31.	June 22, 28-30; July 8, 14, 15, 18, 21, 25; Aug. 4, 15, 18-21, 25-29; Sept. 29.	1901	Jan. 1, 2, 10, 11; Feb. 2, 9, 11-14; Mar. 30; Dec. 8, 13, 14, 20.	June 29; July 1, 2, 7, 11, 13-24, 28-31; Aug. 1-3, 13.
1899	Jan. 9, 23; Feb. 4-7, 11, 12; Mar. 27; Dec. 14, 19-23.	June 18, 28, 29; July 21, 25; August and September missing.	1902	Jan. 24, 26, 29, 30; Mar. 30; December, no report.	July 14, 24, 31; August and September, no report.

COLORADO.

North Central District: LARIMER COUNTY. Station: FORT COLLINS.

DIRECTOR AGRICULTURAL EXPERIMENT STATION, Observer.

[Established, January, 1874. Latitude, 40° 34' N. Longitude, 105° 5' W. Elevation, 4,997 feet.]

The station is on the grounds of the State Agricultural College, three-fourths of a mile south of the railroad depot, and about a mile from the river, which flows through a broad, flat valley, southeasterly toward the Platte. The grounds of the college lie about 4 miles east of the nearest foothills, whence the mountains rise in a series of ridges with a continual ascent to the summit of the range, about 50 miles westward. The town is situated in the valley of the Cache La Poudre River, on the plains, but near the mountains.

The instrument shelter is exposed on the college lawn, 6 feet above the sod, while the rain gage is on the lawn, with the bottom on the sod. The mean temperatures have been determined from observations at 7 a. m., 2 and 9 p. m.; at 7 a. m. and 7 p. m., and from the daily extremes.

Mean monthly and annual temperatures, and highest and lowest monthly means, and monthly mean precipitation, and total amounts for the driest and wettest years, are for the periods 1872-1874, and 1880-1903, with an incomplete record prior to 1887. The remaining data are for the period May 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	29	43	67	14	-31	38	23	0.4	3	0.1	1.4	5.1	9.6	N.W.	
January.....	26	42	68	12	-31	33	21	0.6	4	T.	0.2	3.7	4.0	N.W.	
February.....	26	39	68	9	-38	37	10	0.6	7	0.1	0.4	7.7	8.0	N.W.	
Winter mean.....	27	41	.....	12	.....	.....	.....	1.6	14	0.2	2.0	16.5	.....	N.W.
March.....	35	48	80	21	-24	44	30	0.9	7	0.1	1.9	11.1	11.0	N.W.	
April.....	46	61	86	31	5	55	36	2.1	7	0.7	3.6	6.4	8.5	N.W.	
May.....	55	70	90	41	23	59	50	2.8	11	1.9	7.5	1.3	5.5	N.W.	
Spring mean.....	45	60	.....	31	.....	.....	.....	5.8	25	2.7	13.0	18.8	.....	N.W.
June.....	64	79	97	48	31	72	59	1.6	8	0.3	2.4	0.0	0.0	N.	
July.....	69	84	98	53	36	72	65	1.8	8	0.6	0.7	0.0	0.0	N.W.	
August.....	68	85	100	52	38	72	64	1.2	8	0.9	0.6	0.0	0.0	N.W.	
Summer mean.....	67	83	.....	51	.....	.....	.....	4.6	24	1.8	3.7	0.0	.....	N.W.
September.....	59	77	95	41	22	64	55	1.2	5	0.2	2.2	0.4	4.0	N.W.	
October.....	48	65	87	32	12	54	43	1.0	4	0.2	0.4	1.8	2.0	N.W.	
November.....	35	51	78	20	-13	41	24	0.4	3	0.6	T.	3.2	7.0	N.W.	
Fall mean.....	47	64	.....	31	.....	.....	.....	2.6	12	1.0	2.6	5.4	.....	N.W.
Annual mean.....	47	62	100	31	-38	.....	.....	14.6	75	5.7	21.3	40.7	11.0	N.W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 5-7, 9, 18, 23, 24; Feb. 1, 3-5, 11-13, 15, 20, 23, 24; Nov. 16, 17; Dec. 3, 25-31.	None.	1899	Jan. 1, 6, 28-31; Feb. 1-13, 22-24, 26; Mar. 27, 28, 31; Dec. 11, 14, 15.	June 18, 29, 30; Aug. 28; Sept. 5.
1895	Jan. 1-4, 8, 16, 27, 28; Feb. 1, 6, 7, 10-16; Mar. 14-16; Nov. 26; Dec. 19, 29.	Sept. 13, 16.	1900	Jan. 28, 29; Feb. 8, 12- 17; Dec. 28, 30, 31.	None.
1896	Jan. 3; Mar. 15; Nov. 27-30; Dec. 7.	July 13.	1901	Jan. 1-3, 11; Feb. 4-6, 8-13; Mar. 5, 30; Dec. 8, 13-15.	July 8, 14, 19, 20; Aug. 1.
1897	Jan. 24-29; Feb. 14, 22, 23; Mar. 23; Nov. 26, 29; Dec. 3, 4, 16-21.	July 7.	1902	Jan. 24-31; Feb. 1-3; Dec. 15-18.	June 24; July 15, 31; Aug. 1, 4.
1898	Jan. 19, 22, 25-27; Mar. 22, 23; Nov. 9, 10; Dec. 8-10, 30, 31.	June 28; July 26, 27; Aug. 4, 15, 21, 29.	1903	Feb. 4-8, 13-17, 19; Mar. 1, 20, 23; Nov. 17-19.	July 25; Aug. 4.

COLORADO.

Northeastern Plains Region: LOGAN COUNTY. Station: LEROY (near).

CHARLES GREEN, Observer.

[Established April, 1889. Latitude, 40° 33' N. Longitude, 103° 1' W. Elevation, about 4,380 feet.]

The station is 5 miles west of the Le Roy post-office, on high prairie land, on a slight ridge running east and west, and about half a mile north of Sand Creek. The use of self-registering thermometers was begun January 1, 1895, previous to which a standard dry thermometer was used from July, 1890, and previous to that a thermometer that compared favorably with the standard. The maximum and minimum thermometers are exposed in a standard shelter in the open, 30 feet south of the observer's home, the bottom of the shelter being 4½ feet above the ground. Previous to the use of the shelter, the thermometers were exposed on the north side of the house, in a box without bottom, with hinged door, and an opening at the back and at the top for free circulation of air. The gage is exposed about 4 rods east of the shelter, the bottom being about 10 inches above the ground. Mean temperatures were determined from readings of exposed thermometers at 7 a. m., 2 and 9 p. m., until January, 1895, since which time they have been determined from the daily extremes.

Monthly and annual mean temperatures, and highest and lowest monthly means, are for the period December 1, 1889, to December 31, 1903; monthly mean precipitation, and total amounts of the driest and wettest years, April 1, 1889, to December 31, 1903. The remaining data are for the period of observation, January 1, 1895, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	30	41	67	17	-20	38	25	0.5	4	0.6	0.9	5.4	5.0	NW.
January.....	27	41	64	15	-20	33	19	0.5	3	0.4	1.7	3.3	3.5	NW.
February.....	25	37	67	13	-28	36	13	0.8	6	0.5	1.0	6.8	4.0	NW.
Winter mean.....	27	40	.....	15	.....	.....	.....	1.8	13	1.5	3.6	15.5	.....	NW.
March.....	34	48	79	21	-9	40	24	0.9	6	1.0	2.0	8.7	10.0	NW.
April.....	47	60	85	33	7	51	44	2.4	7	1.0	1.4	5.2	6.0	NW.
May.....	57	71	95	43	21	62	49	2.4	9	0.2	5.0	1.6	8.0	SE.
Spring mean.....	46	60	.....	32	.....	.....	.....	5.7	22	2.2	8.4	15.5	.....	NW.
June.....	66	81	104	52	34	70	61	2.0	8	0.8	4.8	0.0	0.0	SE.
July.....	72	87	104	57	41	78	67	1.8	8	1.2	4.7	0.0	0.0	SE.
August.....	72	87	102	57	41	74	68	2.0	6	0.5	2.9	0.0	0.0	SE.
Summer mean.....	70	85	.....	55	.....	.....	.....	5.8	22	2.5	12.4	0.0	.....	SE.
September.....	63	78	100	47	28	68	59	0.8	4	1.1	0.7	0.1	3.0	SE.
October.....	50	65	91	36	11	54	47	0.6	3	0.1	0.1	1.9	9.0	N.
November.....	37	51	78	24	-13	43	30	0.3	2	0.3	0.4	2.2	4.0	W.
Fall mean.....	50	65	.....	36	.....	.....	.....	1.7	9	1.5	1.2	4.2	.....	NW.
Annual mean.....	48	62	104	35	-28	.....	.....	15.0	66	7.7	25.6	35.2	10.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1895	Jan. 25-28, 31; Feb. 1, 3-16; Mar. 13-16; Dec. 29.	May 8, 27, July 4, 5, 28; Aug. 7, 8, 12, 13, 16, 17, 21, 22, 26; Sept. 9, 13, 14, 16-18.	1900	Jan. 28; Feb. 8, 14-17; Nov. 21; Dec. 30, 31.	June 25, 26, 28-30; July 9, 11-14; Aug. 1, 2, 9; Sept. 8.
1896	Jan. 2, 3; Nov. 26-29.	June 16; July 12, 13; Aug. 2, 3, 10, 13, 14.	1901	Jan. 1, 2; Feb. 4-6, 8-10; Dec. 13-15.	June 23-25, 29; July 2-4, 7-15, 17; 19-22, 24, 28; Aug. 1, 6, 24, 25.
1897	Jan. 23-29; Dec. 2-4, 15-20.	June 22; July 7, 8, 13, 28-30; Aug. 1, 25, 31.	1902	Jan. 25-30; Feb. 1, 2, 4.	June 9, 10, 24; July 15, 24, 29, 31; Aug. 1-3, 16, 17.
1898	Jan. 28; Mar. 22; Dec. 8-10, 30, 31.	June 28, 30; July 23, 26; Aug. 4, 10-21, 25, 27, 29, 30.	1903	Feb. 4-7, 14-18; Nov. 17, 18.	July 6, 14, 20, 24, 25, 27; Aug. 3, 4.
1899	Jan. 6, 30, 31; Feb. 1-12, 22, 23; Mar. 27, 28; Dec. 13, 14.	June 18, 19, 29; July 5, 22, 25, 31; Aug. 21, 27-29; Sept. 1, 3, 4.			

COLORADO.

Northwestern Plateau: RIO BLANCO COUNTY. Station: MEEKER.

THOS. BAKER, Observer.

[Established January, 1891. Latitude, 40° 1' N. Longitude, 107° 58' W. Elevation, 6,182 feet.]

Meeker is located about 40 miles west of the headwaters of the White River, which flows in a general westerly direction. The station is situated near the river and about 2 miles west of the village at a point immediately east of the Great Coal (Grand) Hog Back, which crosses the valley to the northwest and north. The valley to the east is about 4 miles wide, leaving the station unsheltered in that direction. Weather Bureau thermometers have been exposed in a standard shelter, located about 25 feet southeast of the observer's home, since August, 1901. The bottom of the shelter is 5 feet above the ground. Previous to the use of this shelter the thermometers were exposed on the north side of the observer's house on the center of the frame of a large double window, protected by projecting brick walls. The rain gage is in the open about 30 feet southeast of the shelter. The bottom of the gage is 1 foot above the ground. The mean temperatures have been determined from the extremes of temperature.

Monthly and annual mean temperatures and highest and lowest monthly means, monthly mean precipitation, and total amounts for the driest and wettest years are for the period February, 1891, to December 31, 1903 (except a partial record for 1892 and 1893). The remaining data are for the period January 1, 1894, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	19	36	59	2	-30	25	10	1.2	7	1.2	2.2	12.9	10.0
January.....	20	36	61	4	-31	25	11	1.1	7	0.5	1.4	12.8	8.5
February.....	22	39	58	5	-37	29	12	1.3	9	0.8	2.3	12.9	7.0
Winter mean.....	20	37		4				3.6	23	2.5	5.9	38.6	
March.....	33	47	65	18	-24	38	29	1.7	10	1.2	3.1	16.0	11.0
April.....	44	61	86	27	-5	44	41	1.4	10	0.7	2.2	6.2	8.0
May.....	53	72	93	33	17	57	49	1.2	8	0.6	1.6	0.6	3.0
Spring mean.....	43	60		26				4.3	28	2.5	6.9	22.8	
June.....	61	82	102	40	24	67	59	1.0	7	0.6	1.2	0.0	0.0
July.....	67	87	103	44	30	71	63	1.7	9	1.5	3.7	0.0	0.0
August.....	65	84	99	44	29	69	62	1.3	9	0.3	2.0	0.0	0.0
Summer mean.....	64	84		43				4.0	25	2.4	6.9	0.0	
September.....	56	74	90	35	19	60	52	1.6	6	1.4	2.3	0.4	4.0
October.....	44	62	80	27	12	48	41	1.4	5	1.0	1.2	2.1	7.0
November.....	33	50	67	18	-22	37	28	1.0	7	1.1	1.0	7.3	8.0
Fall mean.....	44	62		27				4.0	18	3.5	4.5	9.8	
Annual mean.....	43	61	103	25	-37			15.9	94	10.9	24.2	71.2	11.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 6-9, 17-20; Feb. 4-8, 9-14, 17, 18, 23-25; Dec. 10, 12, 25, 26.	May 13, 16; July 3, 7, 9-11, 14; Aug. 28.	1899	Jan. 3-5, 8, 9, 22; Feb. 3-7, 11, 12; Mar. 16; Dec. 11, 16-19.	June 16-18, 20, 23, 25, 27-30; July 4-10, 20-24, 26, 30, 31; Aug. 28.
1895	Jan. 1, 7, 20, 25, 27, 28; Feb. 6, 11, 14, 15; Mar. 14; Dec. 2-4, 16, 17, 22, 24-26, 28-31.	June 26; July 15, 16, 24, 27; Aug. 6, 16-18, 20.	1900	Feb. 7, 16; Dec. missing.	May 27, 30, 31; June 1, 5-7, 13, 15, 17-30; July 1-4, 6-14, 16-18, 20, 25, 27-31; Aug. 1, 2, 7.
1896	Jan. 2, 5-7; Nov. 26-29.	May 28; June 7-9, 12, 15-20, 22, 29; July 2-5, 8-13, 20-22; Aug. 1-3, 11-16.	1901	Jan. 1, 2, 10, 11; Feb. 13; Dec. 13, 20, 21.	June 29, 30; July 1, 6, 7, 12-14, 16-23, 29-31; Aug. 1.
1897	Jan. 1-4, 16-18, 25-27; Feb. 13-24; Dec. 2-4, 11, 12, 18-24, 31.	June 21, 22, 26, 27; July 6-8, 11, 12, 24, 25, 27, 29; Aug. 20; Sept. 1.	1902	Jan. 24, 26, 30; Feb. 2-4; Dec. 3, 16, 21, 29, 31.	June 6, 9, 10, 22-25; July 31; Aug. 1-4, 6-8, 16.
1898	Jan. 7, 11-17, 21, 24, 26-30; Feb. 2; Mar. 22; Nov. 19; Dec. 6, 8-12, 21, 23, 29, 30.	June 15-21, 25-30; July 3-5, 7-10, 12-16, 19, 21, 22, 24-30; Aug. 1, 3, 10-13, 15, 17-19, 26, 28, 29.	1903	Jan. 1, 15, 20, 30; Feb. 4-9, 13-16; Mar. 1, 2.	June 28, 29; July 12, 25; Aug. 5-7, 17-19, 21.

COLORADO.

Northwestern Plateau: ROUTT COUNTY. Station: PAGODA.

J. M. WADSWORTH, Observer.

[Established January, 1891. Observations were continued by Mr. Wadsworth until a few days before his death, December 24, 1901. Latitude, 40° 20' N. Longitude, 107° 25' W. Elevation, about 4,500 feet.]

Pagoda is in the narrow valley of the Williams River, a stream running westerly. At this point the valley is about one-fourth of a mile wide, with high mountains on either side of the stream, widening out somewhat to the eastward at the junction of the south fork of the river. The station was located at the home of the observer. Standard Weather Bureau thermometers were exposed on the north side of an out-house, somewhat protected by a covering above and placed 4 feet above the ground. The rain gage was exposed in the open, 100 feet from the nearest building and 2 feet above the ground.

The mean temperatures were determined from the readings of the maximum and minimum thermometers.

Monthly and annual mean temperatures and highest and lowest monthly means and monthly mean precipitation and total amounts for the driest and wettest years are for the period of observation January 1, 1891, to December 24, 1901; the remaining data are for the period January 1, 1893, to December 24, 1901.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max. min.	Absolute max. min.	Mean of the min. min.	Absolute min.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	30	34	54	5	-12	11	11	1.6	1	0.7	3.0	15.7	14.0	W
January.....	19	34	50	4	-31	13	13	1.5	4	0.3	1.7	15.7	7.5	W
February.....	21	36	51	6	-33	13	13	2.4	6	2.6	4.4	29.3	12.0	W
Winter mean.....	20	35		5				5.7	21	3.6	9.1	42.7		W
March.....	30	44	65	14	-14	36	36	2.4	8	0.6	4.9	15.8	12.0	W
April.....	42	56	74	24	-11	65	39	1.9	7	1.1	3.5	19.8	10.0	W
May.....	51	69	85	33	9	85	46	1.6	6	0.5	1.8	1.0	4.0	W
Spring mean.....	41	57		25				5.9	21	3.2	10.2	42.3		W
June.....	58	73	97	37	21	93	53	1.2	4	0.7	1.6	0.0	7.0	W
July.....	65	81	98	43	13	93	60	1.2	5	0.7	1.5	0.0	0.0	W
August.....	64	85	99	43	13	93	60	1.6	5	0.5	1.9	0.0	0.0	W
Summer mean.....	62	84		41				4.0	14	1.4	6.0	0.0		W
September.....	55	71	92	34	16	86	52	1.2	4	1.0	1.0	1.2	7.0	W
October.....	44	62	80	26	6	74	45	1.6	5	2.4	1.8	7.3	10.0	W
November.....	32	49	68	16	-21	51	36	1.1	5	0.6	1.1	10.6	7.0	W
Fall mean.....	44	62		25				4.1	14	4.2	3.9	29.3		W
Annual mean.....	47	60	80	24	-30			29.7	70	12.4	39.2	123.1	14.0	W

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 24, 1901.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1894	Jan. 6, 18-20; Feb. 4, 5, 9-13, 15, 17, 22-25; Dec. 10, 13, 19-20, 31	July 2, 3, 9-12, 16, 22, 24-27; Aug. 13, 17, 20	1896	Jan. 1, 11-13, 15, 17, 19, 22, 25-27, 30; Feb. 3, 12, 15, 18, 20, 23, 25; Mar. 23, 24, 27, 28, 30; Apr. 4, 6, 9-12, 15-24, 26-31	June 18-20, 22, 23, 26, 29-30; July 1, 3, 7, 12, 13-17, 19, 22, 24-31; Aug. 2, 4, 9, 11-16, 19, 23, 27-31
1895	Jan. 1, 3, 10-12, 14-16, 18, 20, 22, 24-26, 28, 30; Feb. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Mar. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Apr. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; May 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Jun. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Jul. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Aug. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Sep. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Oct. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Nov. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Dec. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30	July 17, 20; Aug. 4, 7, 17, 18, 21, 22, 30; Sept. 13, 14, 18	1899	Jan. 3, 8-10, 14, 15; Feb. 3, 7, 10, 12, 14, 15; Mar. 27, Dec. 27-31	June 18, 20, 22; July 4, 10, 19-20, 31; Aug. 1, 13, 22; Sept. 1, 3, 5
1896	Jan. 3, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Feb. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Mar. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Apr. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; May 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Jun. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Jul. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Aug. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Sep. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Oct. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Nov. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Dec. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30	June 30, 11, 14-21, 25, 29, 30; July 1-13, 19-21; Aug. 12-17, 29; Sept. 1	1900	Feb. 17; Dec. 18, 29, 31	July 18-20, 22, 23; July 27, 28, 29, 30, 31; Aug. 1, 3, 5, 7, 10, 12, 14-16, 18, 20, 22, 24-26, 28, 30; Sep. 1, 3, 5
1897	Jan. 2-5, 18, 19, 22-26; Feb. 13, 14, 23; Mar. 9, 11, 13, Apr. 1; Dec. 3, 4, 19-24, 31	July 31; July 1, 13, 24-31; Aug. 11, 15, 28, 30; Sept. 1	1901	Jan. 1-3, 11; Feb. 21-23; Dec. 23, 30, 31	June 18-20, 22; July 1, 3, 5, 11-14, 17-20, 22, 23; Aug. 1-4

COLORADO.

Western Valleys: GARFIELD COUNTY. Station: SILT.

W. S. PARK, Observer.

[Established September, 1894. Latitude 39° 35' N. Longitude 107° 39' W. Elevation, 5,600 feet.]

The station is located 2½ miles north of the railroad station at Silt, on the north bank of the Grand River. It is about a mile from the base of the Grand Hog Back, and the slope from the station to the river is rather steep. The valley of the Grand at this point runs east and west and is from 6 to 8 miles at its greatest width. Since April, 1900, the Weather Bureau thermometers have been exposed in a standard shelter about 50 feet east of the observer's house. The bottom of the shelter is 5 feet from the ground. Previous to the use of the shelter the thermometers were exposed on the north side of a double-walled outbuilding, somewhat protected by a 2-foot projection of the roof. The rain gage is exposed in the open, 25 feet from the shelter. The bottom of the gage is on the ground. The mean temperatures have been determined from the daily maximum and minimum temperatures.

MONTHLY, SEASONAL, AND ANNUAL MEANS, SEPTEMBER 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max. min.	Absolute max. min.	Mean of the min. min.	Absolute min.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.		
December.....	25	36	50	13	-19	30	16	0.6	6	T.	1.4	5.7	11.0	W.
January.....	15	36	57	13	-17	29	20	0.8	5	0.2	1.1	9.5	11.0	W.
February.....	14	39	58	15	-15	32	19	0.8	6	0.2	1.2	12.2	9.0	W.
Winter mean.....	26	37	52	14	-17	31	18	2.2	19	0.4	3.7	27.4	10.3	W.
March.....	36	48	73	23	-12	43	32	1.2	7	0.4	3.6	11.6	15.0	W.
April.....	48	63	91	33	8	51	45	1.0	6	1.5	1.0	1.4	6.0	W.
May.....	57	73	99	41	25	61	53	1.2	6	0.1	1.5	1.5	7.0	W.
Spring mean.....	47	61	84	32	11	51	43	3.4	19	2.0	6.0	14.6	12.7	W.
June.....	67	84	99	45	27	72	62	0.8	5	0.1	0.8	0.0	0.0	W.
July.....	72	90	100	54	34	75	69	1.1	5	T.	1.3	0.0	0.0	W.
August.....	71	96	101	54	32	73	68	1.1	5	0.2	2.1	0.0	0.0	W.
Summer mean.....	70	87	100	52	31	73	66	3.0	19	0.3	4.2	0.0	0.0	W.
September.....	62	78	92	47	25	65	58	1.3	7	1.1	1.4	0.0	0.0	W.
October.....	50	67	83	35	15	53	45	1.2	5	0.8	1.5	0.0	0.0	W.
November.....	37	50	68	25	-2	42	31	0.7	5	1.2	1.2	2.6	5.5	W.
Fall mean.....	50	65	81	35	16	53	43	3.2	17	3.1	4.1	2.6	3.5	W.
Annual mean.....	48	63	80	41	-25	61	51	11.8	74	5.8	18.0	44.6	15.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Dec. 25.				
1895	Jan. 7, 8, 23, 26-29; Feb. 1, 4, 5, 9, 10, 12-16; Mar. 15-17; Nov. 25, 27; Dec. 1-4, 9, 10, 17-19, 23, 27, 29-31.	June 27; July 25-28; Aug. 3, 6, 11, 17, 18, 20.	1899	Jan., none; Feb. 4-7, 12; Dec. 20.	June 19, 30; July 8-10, 21, 22, 25
1896	Jan. 1, 3-7; Feb. 10 to May maximum; Nov. 26; Dec. none.	June 9, 13-18; July 4, 5, 11-13, 21; Aug. 10, 12, 15.	1900	Jan., none; Feb. 8; Dec. 31.	June 28; July 10-12, 30, 31; Aug. 1, 2
1897	Jan. 3, 4, 17; Feb. 14, 21; Dec. 21.	July 13.	1901	Jan. 1, 2, 11; Dec. 13.	June 29, 30; July 1, 7, 12, 13, 15-22, 29-31; Aug. 1-3, 14.
1898	Jan. 21, 26; Feb. none; Mar. 29; Dec. 9, 22, 30, 31.	June 18, 29, 31, 28-30; July 9, 10, 25-30; Aug. 13, 15, 29.	1902	Jan. 26, 27; Feb. 2, 3; Dec. 30.	June 29, 22, 25; July 14, 15, 31; Aug. 1-4, 6.
			1903	Jan., none; Feb. 4, 5, 7, 8, 13-16; Mar. 1; Dec. none.	Aug. 6, 18, 19.

COLORADO.

Central Mountain Region, Western Slope: SUMMIT COUNTY. Station: BRECKENRIDGE.

B. A. ARBOGAST, Observer.

[Established October, 1888. Latitude, 39° 29' N. Longitude, 106° 2' W. Elevation, 9,524 feet.]

Breckenridge lies about the middle of the narrow valley of the Blue River, which flows northerly. On the west and east sides of the valley, which is about 1½ miles wide, there are high ranges of mountains reaching above timber line. The station is located in the southern part of the village, about 400 feet east of the river. Weather Bureau maximum and minimum thermometers are exposed in a standard shelter about 8 feet above the ground and 50 feet from the nearest building. The readings of these instruments form the basis of the mean temperatures used. The rain gage is in the open, with the bottom about 10 inches above the ground. The shelter was placed in use in the spring of 1899, previous to which time the thermometers were exposed in a box open on three sides, mounted about 12 feet above the ground and 50 feet from the building.

Monthly and annual mean temperatures, and highest and lowest monthly means, monthly mean precipitation, and total amounts for the driest and wettest years, are for the period January, 1889, to December, 1903; the remaining data are for the period February 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	17	30	60	0	-31	34	7	2.6	8	1.1	8.5	29.9	24.0	N.
January.....	15	29	72	-1	-30	26	8	1.9	9	0.4	2.4	27.1	17.2	N.
February.....	15	29	71	-1	-37	27	6	3.1	11	0.8	8.4	39.3	23.5	N.
Winter mean.....	16	29		-1				7.6	28	2.3	19.3	96.3		N.
March.....	22	34	61	5	-25	39	13	3.5	13	1.3	5.2	38.9	24.0	N.
April.....	29	42	69	15	-16	38	23	3.1	10	1.4	6.4	35.2	15.2	N.
May.....	39	53	73	25	-6	45	30	2.2	7	1.2	2.9	14.4	18.0	N.
Spring mean.....	30	43		15				8.8	30	3.9	14.5	88.5		N.
June.....	45	65	84	32	12	54	41	1.1	7	0.9	0.2	3.7	5.5	SW.
July.....	53	70	86	37	26	59	46	2.4	9	2.1	1.9	0.9	5.3	W.
August.....	54	70	90	37	23	61	51	2.1	10	1.5	3.8	0.0	0.0	W.
Summer mean.....	52	68		35				5.6	26	4.5	5.9	4.6		W.
September.....	46	64	86	29	12	53	44	1.1	5	2.3	0.2	2.5	6.0	S.
October.....	36	51	77	20	-2	47	30	1.4	6	0.8	2.2	15.5	15.0	N.
November.....	26	40	69	10	-31	31	20	2.3	6	0.3	4.3	23.0	17.5	N.
Fall mean.....	36	52		20				4.8	17	3.4	6.7	41.0		N.
Annual mean.....	33	48	69	17	-37			26.8	101	14.1	46.4	230.4	24.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 80° or above.	Year.	Minimum below -10°.	Maximum 80° or above.
1894	Jan. 4, 6, 9, 10, 13, 18, 19; Feb. 1, 2, 4, 5, 7, 9-15, 17, 24, 25; Mar. 5, 23; Dec. 3, 11, 26-28, 31.	July 11.	1899	Jan. 1, 9, 10, 13, 14, 21-25; Feb. 5-7, 12; Mar. 12, 13, 27; Apr. 6; Dec. 3, 5, 15, 18, 19, 21, 22.	None.
1895	Jan. 2, 8, 23, 25-28; Feb. 5, 8, 12-16, 26, 27; Mar. 1, 6, 9, 10, 16, 17, 20, 31; Apr. 22; Dec. 3, 4, 15, 17-19, 23, 25, 29.	July 16, 18, 24, 26; Aug. 2, 12, 17, 20; Sept. 8, 11-13.	1900	Jan. 25; Feb. 9, 17, 28; Dec. 3, 28-31.	Do.
1896	Jan. 7, 25; Feb. 1, 4, 5, 7, 13; Mar. 3, 6, 8, 10, 18; Apr. 1, 2; Nov. 6-8, 27-30; Dec. 14, 19.	June 9, 19; July 12.	1901	Jan. 1-3, 10, 11, 27, 30, 31; Feb. 3, 8, 11-13; Apr. 2, 17; Dec. 8, 13, 20, 25.	June 30; July 8, 9, 12, 14-25, 30; Aug. 1, 2.
1897	Jan. 2-6, 17-20, 28; Feb. 1, 8, 10, 14, 21-24, 27; Mar. 13, 14, 22; Dec. 3, 4, 16-19, 21-23, 25, 26, 31.	None.	1902	Jan. 3, 21, 24, 29, 31; Feb. 1, 14, 20; Mar. 3, 5, 14, 29; Nov. 17, 28-30; Dec. 1-4, 7, 15, 16, 21, 23, 28-31.	July 15, 31; Aug. 1-3.
1898	Jan. 1, 11-15, 18-20, 23-28, 31; Feb. 2, 4, 5, 10-13; Mar. 3, 23, 24, 28-30; Nov. 9, 22, 25; Dec. 4, 6, 9, 10, 12-15, 23-25, 30, 31.	June 29, 30; July 4, 25, 26, 31; Aug. 11, 21, 26, 30.	1903	Jan. 6, 12, 14, 15, 18, 19, 30; Feb. 4-7, 9, 13-15; Nov. 18; Dec. 24.	Aug. 12-14.

COLORADO.

North Central District: DENVER COUNTY. Station: DENVER.

F. H. BRANDENBURG, District Forecaster.

[Established by Signal Service November 10, 1871. Latitude, 39° 45' N. Longitude, 105° 0' W. Elevation, 5,183-5,600 feet.]

The city of Denver lies on the western edge of the Great Plains, 40 miles from the Continental Divide and 10 miles from the eastern limits of the foothills, in full view of a stretch of 135 miles of snow-capped mountains. Longs Peak, 50 miles to the northwest, marks the most easterly point of the Continental Divide, and Pikes Peak, 63 miles south, the southern limit of the Front Range.

Denver is built on the banks of the South Platte River, principally, however, on the east bank. Coming from the south the river takes a northeasterly course, after being joined in the center of the city by Cherry Creek, a tributary rising on the Arkansas-Platte divide. On the left bank of the river the rise is rather abrupt, while on the right, or east bank, the slope is gradual, the distance from the river being several miles before an increase of 200 feet in elevation is reached.

Tabulated data are from the following periods of observation: Sunshine data, fourteen years, February, 1890, to December, 1903; humidity, fifteen years, 1889-1903. Remainder of data is from the full period of observation, thirty-one years, January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	33	45	74	20	-25	32	22	0.7	5	0.4	1.6	7.8	17.5	58	0.95	48	1.18	186	68	S.
January.....	29	42	76	16	-29	38	18	0.5	5	0.8	1.6	4.4	18.0	58	0.82	49	1.12	217	73	S.
February.....	32	44	77	19	-22	39	18	0.5	5	0.8	1.6	7.0	7.9	58	0.91	49	1.16	186	67	S.
Winter mean.....	31	44	77	18	-25	39	19	1.7	15	1.2	3.5	19.2	.....	59	0.89	49	1.15	186	69	S.
March.....	59	52	81	26	-11	46	32	0.9	7	0.2	3.1	10.8	18.0	61	1.13	42	1.33	248	67	S.
April.....	48	60	85	35	4	54	41	2.0	9	0.9	2.5	7.7	23.0	62	1.64	36	1.75	270	68	S.
May.....	57	70	92	44	27	62	52	2.5	10	3.1	4.2	1.5	8.9	65	2.38	38	2.49	279	61	S.
Spring mean.....	48	61	92	35	27	62	52	5.4	26	4.2	9.8	20.0	.....	63	1.72	39	1.86	266	65	S.
June.....	67	81	99	53	33	72	62	1.4	7	0.1	2.9	0.0	0.0	58	3.16	34	2.99	300	69	S.
July.....	72	86	102	59	42	77	67	1.6	9	1.1	0.6	0.0	0.0	58	3.75	36	3.82	310	67	S.
August.....	71	85	105	57	43	75	68	1.4	9	0.4	2.8	0.0	0.0	58	3.38	33	3.29	279	69	S.
Summer mean.....	70	84	105	56	43	75	68	4.4	25	1.6	6.3	0.0	.....	63	3.43	34	3.37	296	68	S.
September.....	51	77	97	48	27	66	51	0.8	5	0.7	0.6	11.4	59	2.40	30	2.47	270	75	74	S.
October.....	51	65	91	37	1	56	46	0.9	4	0.8	0.5	3.1	13.2	58	1.65	34	2.04	248	76	S.
November.....	39	52	77	26	-18	46	22	0.5	4	0.6	0.7	3.6	9.0	55	1.11	41	1.35	210	71	S.
Fall mean.....	51	65	91	37	-18	56	46	2.2	14	1.4	1.9	7.3	.....	57	1.72	35	1.95	243	74	S.
Annual mean.....	50	63	105	37	-29	62	52	13.7	80	8.4	21.5	46.5	23.0	61	1.94	39	2.08	251	69	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6, 9, 23, 24; Feb. 11, 12, 20, 23; Dec. 25-28.	July 2, 10, 11.	1899	Jan. 1, 31; Feb. 1-8, 10-12, 22, 23; Mar. 27; Dec. 15.	June 30; July 25; Sept. 5.
1895	Jan. 27, 28; Feb. 1, 6, 7, 10-15; Mar. 14, 15.	July 27; Sept. 13.	1900	Jan. 28; Feb. 8, 13-17; Dec. 28, 30, 31.	June 26, 28; July 12; Aug. 1, 29.
1896	Jan. 3; Mar. 3; Nov. 27-29.	July 12, 13.	1901	Jan. 1, 2; Feb. 4, 5, 8, 9; Dec. 14, 15.	June 23-25, 29; July 7-9, 11, 12, 14, 16, 19, 20, 30, 31; Aug. 1.
1897	Jan. 4, 24-28; Dec. 15-18, 20, 21.	July 6, 7.	1902	Jan. 25-31; Feb. 1, 2...	June 22, 24, 26; July 14, 15, 28, 29; Aug. 1, 3, 17.
1898	Jan. 25, 28; Mar. 22; Dec. 8-10, 30, 31.	June 28, 30; July 26, 28; Aug. 4, 27, 29.	1903	Feb. 3, 4, 7, 13-16.....	June 28; July 23, 25; Aug. 4, 21.

COLORADO.

Eastern Plains Region: WASHINGTON COUNTY. Station: COPE.

DAVID LAYBOURN, Observer.

[Established August, 1891, and discontinued at the close of April, 1901. Latitude, 39° 40' N. Longitude, 102° 49' W. Elevation, about 4,300 feet.]

The station was on high rolling prairie on the banks of the Arikaree River, which flows northeasterly, joining the Republican in the northwestern part of Kansas. The location is about 26 miles north of the village of Seibert on the Rock Island Railroad and about 45 miles west of the Colorado-Kansas line. Standard thermometers were exposed in a box 30 by 24 by 7 inches deep, on the north side of a frame building, northwest of the dwelling house. The height of the thermometers above ground was 5 feet. The gage was exposed in the open about 14 inches above the ground. The mean temperatures have been determined from the daily extremes.

Monthly and annual mean temperatures and highest and lowest monthly means are for the period, December, 1891, to April, 1901; monthly mean precipitation and total amounts for the driest and wettest years, August, 1891, to April, 1901. The remaining data are for the period, January 1, 1893, to April 30, 1901.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	42	65	20	-18	37	25	0.6	3	0.5	0.4	4.4	3.0	SW.
January.....	29	43	69	18	-15	37	21	0.4	3	0.2	T.	3.4	5.0	SW.
February.....	27	40	74	14	-26	39	14	0.5	4	0.8	T.	4.0	4.0	NW.
Winter mean.....	29	42	.....	17	.....	.....	.....	1.5	10	1.5	0.4	11.8	.....	SW.
March.....	37	51	82	21	-11	41	34	1.0	5	0.5	0.4	7.8	6.0	NW.
April.....	49	63	85	35	12	52	47	3.1	5	0.7	2.0	5.6	8.0	NW.
May.....	58	73	97	44	26	62	53	3.6	7	1.1	9.8	2.2	6.0	SE.
Spring mean.....	48	62	.....	33	.....	.....	.....	7.7	18	2.3	12.2	15.6	.....	NW.
June.....	69	84	103	55	37	72	66	2.5	7	1.1	5.7	0.0	0.0	S.
July.....	73	87	105	60	45	76	69	3.2	7	0.8	3.6	0.0	0.0	SE.
August.....	74	88	102	59	35	76	71	1.7	5	0.9	1.8	0.0	0.0	S.
Summer mean.....	72	86	.....	58	.....	.....	.....	7.4	19	2.8	11.1	0.0	.....	S.
September.....	66	80	103	50	28	70	61	0.7	2	0.0	3.3	1.5	8.0	S.
October.....	51	67	93	37	19	57	47	0.8	2	0.1	1.3	4.3	8.5	SW.
November.....	39	51	77	25	-12	44	33	0.3	3	0.3	0.2	2.6	4.5	SW.
Fall mean.....	52	66	.....	37	.....	.....	.....	1.8	8	0.4	4.8	8.4	.....	SW.
Annual mean.....	50	64	105	38	-26	.....	.....	18.4	55	7.0	28.5	35.8	8.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO APRIL 30, 1901.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 5, 23, 24; Feb. 11-13, 20; Dec. 26-28.	May 13; June 18, 29, 30; July 2, 9-11, 16-18, 23-27, 29, 30; Aug. 5-11, 15, 18, 28.	1898	Jan. 26; Mar. 22; Dec. 8-10, 30, 31.	June 28, 30; July 23, 26; Aug. 14, 15, 19, 21, 22, 26, 28, 29, 31; Sept. 1-3.
1895	Jan. 27, 28; Feb. 1, 6, 7, 10-16; Mar. 14; Nov. 23; Dec. 29.	May 8, 27; July 5, 15, 17, 25, 27, 28; Aug. 11-13, 16, 17, 21, 22, 26; Sept. 5, 9, 10, 12-14, 16-19.	1899	Jan. 28, 30, 31; Feb. 1-7, 10-12, 22, 23; Mar. 27; Dec. 13.	June 17-19; July 5, 10, 11, 22, 25, 31; Aug. 12, 18, 21, 25-29; Sept. missing.
1896	Jan. 2, 3; Nov. 26-29.	June 11, 14-17; July 1, 2; Aug. 2, 3, 7, 9, 10, 12-15, 20.	1900	Jan. 28; Feb. 8, 14-17; Dec. 28-31.	June 25, 26, 28, 30; July 1-3, 10, 12-14, 30; Aug. 1-4, 10, 15, 16, 20.
1897	Jan. 23-28; Mar. 23; Dec. 2, 15, 16, 21.	June 20; July 6-8, 13, 16, 28-30; Aug. 1, 25, 31; Sept. 1, 6.	1901	Jan. 1, 2; Feb. 4, 8-10.	

COLORADO.

Grand Valley: MESA COUNTY. Station: GRAND JUNCTION.

RICHARD H. SULLIVAN, Observer.

[Established March 1, 1892. Latitude, 39° 09' N. Longitude, 108° 33' W. Elevation, 4,580 feet.]

The station is in the Canon Block, a two-story office building on the southwest corner of Main and Fourth streets, near the center of the city, which is situated at the junction of the Grand and Gunnison rivers. The region surrounding the city, known as Grand Valley, is inclosed by elevations ranging from 7,000 to 10,000 feet, except in the northwest, where the country is an open, flat desert; the valley proper is 8 to 10 miles in width by about 35 miles long, and the station is 13 miles west of the point where the Grand River leaves the mountains.

Prior to 1899 the equipment of the station was limited to standard maximum and minimum thermometers and a rain gage. The thermometers were exposed in an improvised shelter attached to the north window of Dr. S. M. Bradbury's office.

In order to complete the twelve year period the temperatures of January and February, 1904, were used. The humidity, sunshine, wind velocity, and wind direction are from five years record, 1899 to 1903. Remainder of data is from the full period of observation, March 1, 1892, to December 31, 1903, twelve years.

From 1899 to December, 1903, the station had a full equipment of instruments with roof exposure.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	28	39	66	17	-11	35	22	0.3	11	0.3	0.4	3.6	4.0	70	0.79	52	1.05	214	73	SE.
January.....	27	38	56	16	-16	33	20	0.5	4	0.6	1.0	4.1	4.0	75	0.85	58	1.23	205	68	SE.
February.....	32	43	70	20	-15	33	15	0.6	4	T.	0.8	5.8	8.0	72	1.02	51	1.30	195	65	NW.
Winter mean.....	29	40	.....	18	.....	.....	.....	1.4	11	0.9	2.2	13.5	.....	72	0.89	54	1.19	205	69	NW.
March.....	43	54	78	31	7	48	39	0.7	6	1.0	1.0	2.6	4.0	61	1.34	34	1.34	252	68	NW.
April.....	53	66	84	40	16	57	51	0.8	5	0.9	1.1	0.7	3.2	57	1.75	31	1.78	279	70	NW.
May.....	62	76	94	48	30	65	59	0.7	5	1.4	0.6	0.1	0.3	51	2.15	24	1.98	337	76	SE.
Spring mean.....	53	65	.....	40	.....	.....	.....	2.2	16	3.3	2.7	3.4	.....	56	1.75	30	1.70	289	71	SE.
June.....	72	87	104	57	37	76	69	0.4	3	0.1	0.4	0.0	0.0	42	2.52	21	2.44	369	83	SE.
July.....	78	92	103	64	48	82	75	0.5	4	T.	1.0	0.0	0.0	41	2.87	19	2.65	370	82	SE.
August.....	76	89	103	62	48	78	73	1.0	7	0.6	1.0	0.0	0.0	48	3.05	26	3.21	317	75	SE.
Summer mean.....	75	89	.....	61	.....	.....	.....	1.9	14	0.7	2.4	0.0	.....	44	2.81	22	2.77	352	80	SE.
September.....	66	80	98	53	32	70	63	0.8	11	0.1	1.5	0.0	0.0	48	2.17	27	2.45	312	84	SE.
October.....	54	66	86	41	26	57	51	0.9	11	0.2	1.8	T.	0.2	56	1.84	33	1.90	265	77	NW.
November.....	40	52	72	29	7	45	37	0.5	3	0.2	0.3	1.7	4.5	62	1.33	41	1.50	222	74	SE.
Fall mean.....	53	66	.....	41	.....	.....	.....	2.2	11	0.5	3.6	1.7	.....	55	1.78	34	1.95	266	78	SE.
Annual mean.....	53	65	104	40	-16	.....	.....	7.7	52	5.4	10.9	18.6	8.0	57	1.81	35	1.90	278	75	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1894	None.	July 1, 10.	1900	None.	June 21, 26-28; July 9-14, 17, 18, 30, 31; Aug. 1, 2.
1895	Dec. 18, 29, 31.	None.	1901	Jan. 3; Dec. 13.	June 29, 30; July 1, 7, 12, 13, 15, 18-21, 29-31; Aug. 1, 2.
1896	None.	June 16.	1902	Jan. 26, 27; Feb. 3, 4; Dec. 22.	June 10, 23-25; July 15, 31; Aug. 1-3.
1897	Dec. 21, 22, 24, 26.	None.	1903	Jan. 1; Feb. 4, 7-10, 13-15, 17-21.	None.
1898	Jan. 1, 15, 18, 25-27; Feb. 3; Dec. 22, 23, 30, 31.	June 27.			
1899	Jan. 5, 18; Feb. 4, 6, 7; Dec. 15.	None.			

COLORADO.

Arkansas-Platte Divide, Southern Slope: EL PASO COUNTY. Station: COLORADO SPRINGS.

COLORADO COLLEGE, Observer.

[Established December, 1871. Latitude, 38° 50' N. Longitude, 104° 49' W. Elevation, 6,098 feet.]

The station at Colorado Springs, under the direction of Colorado College, is situated on the grounds of that institution. Pikes Peak is nearly due west, distant on an air line about 12 miles and at an elevation of about 8,000 feet above the city. The line of mountains on both sides of the peak occupies about one-third of the horizon, as seen from the college grounds, and is interrupted on the north of the peak by the depression known as the Pass—the valley of Fountain Creek.

The valley of the Monument, in which the station is situated, extends northward for 20 miles or more, the stream rising in the highlands which divide the basins of the Arkansas and the Platte.

The thermometers and rain gage are exposed in a standard shelter on the roof of Hagermann Hall, a three-story building. The mean temperatures have been determined from observations at 5 a. m., 1 and 9 p. m., at 6 a. m. and 6 p. m., and from the extremes.

The monthly and annual mean temperatures and highest and lowest monthly means and monthly mean precipitation and total amounts for the driest and wettest years are for the period December 1, 1871, to December 31, 1903. The record for this period is incomplete from 1876 to 1885 and for the year 1891. The remaining data are for the period March 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	44	69	18	- 17	41	20	0.3	3	T.	0.2	3.5	10.3	N.
January.....	27	43	65	17	- 19	35	19	0.2	3	T.	0.1	2.2	2.1	N.
February.....	29	40	65	15	- 24	36	17	0.3	4	0.1	0.2	5.6	9.5	N.
Winter mean.....	29	42	.....	17	.....	.....	.....	0.8	10	0.1	0.5	11.3	.....	N.
March.....	37	48	75	23	- 6	44	30	0.6	6	T.	1.1	7.9	13.2	N.
April.....	45	58	79	32	6	52	38	1.5	6	0.5	2.0	7.8	18.0	N.
May.....	55	66	85	42	23	62	50	2.4	9	1.3	3.2	0.0	T.	SE.
Spring mean.....	46	57	.....	31	.....	.....	.....	4.5	21	1.8	6.3	15.7	.....	N.
June.....	64	76	94	49	34	69	58	2.0	9	0.4	2.4	0.0	0.0	N.
July.....	68	80	92	54	37	73	63	2.9	10	2.5	4.7	0.0	0.0	SE.
August.....	67	81	88	53	42	71	64	2.1	9	3.1	3.8	0.0	0.0	SE.
Summer mean.....	66	79	.....	52	.....	.....	.....	7.0	28	6.0	10.9	0.0	.....	SE.
September.....	59	74	93	45	26	64	56	1.0	5	0.2	0.5	T.	0.4	SE.
October.....	41	63	82	35	14	52	44	0.7	4	0.2	T.	1.8	4.3	N.
November.....	37	52	73	25	- 10	42	30	0.3	11	0.1	0.3	1.8	2.8	N.
Fall mean.....	48	63	.....	35	.....	.....	.....	2.0	12	0.5	0.8	3.6	.....	N.
Annual mean.....	47	60	98	34	- 24	.....	.....	14.3	71	8.4	18.5	30.6	18.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 6, 23, 24; Feb. 11, 12, 24; Dec. 25-27.	June 30.	1899	Jan. 1, 6, 29, 31; Feb. 1-7, 10-12; Mar. 28; Dec. 15.	June 18, 19; July 5, 31; Aug. 28; Sept. 4-6.
1895	Jan. 8, 26-28; Feb. 7, 10-16; Mar. 14; Nov. 23, 26; Dec. 29.	None.	1900	Jan. 28, 29; Feb. 8, 13, 15-17; Dec. 28, 30, 31.	June 26, 27; July 6, 9, 12-14; Aug. 2.
1896	Jan. 3; Mar. 4; Nov. 27-29.	Aug. 10, 15.	1901	Jan. 1, 2, 11; Feb. 4, 5, 9; Dec. 14, 15.	June 23-25, 29, 30; July 4, 9, 10.
1897	Jan. 4, 24-28; Feb. 14; Dec. 17.	July 7, 13.	1902	Jan. 25-30; Feb. 2; Dec. 4.	June 24-27; July 15; Aug. 1-4.
1898	Jan. 22, 23, 25, 26; Dec. 9, 10, 30, 31.	June 28, 30; July 26, 27.	1903	Feb. 4, 6, 7, 13-16; Mar. 1; Nov. 18.	June 30; Aug. 3, 4.

COLORADO.

Plains Region of Arkansas-Platte Divide: ELBERT COUNTY. Station: HAMPS.

WILFRED HAMP, Observer.

[Established January, 1893. Latitude, 39° 7' N. Longitude, 103° 44' W. Elevation, about 5,500 feet.]

The station lies 16 miles west-southwest of Hugo, on Tucker Creek, a small stream running easterly. The country is rolling prairie, the valley being narrow but well grassed.

Since April, 1900, the Weather Bureau thermometers have been exposed in a standard instrument shelter 35 feet west of the observer's house, at a height of 5 feet above the ground. Previous to the use of the shelter they were exposed in a box about 4 feet above ground on the north side of the house. The rain gage is in the open, 60 feet south of the house, with the bottom 6 feet above the ground.

The mean temperatures have been determined from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.							Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.		
December.....	28	43	71	13	-21	34	21	0.5	3	0.1	1.0	6.2	8.0	N.	
January.....	27	42	68	12	-24	32	23	0.2	2	0.2	0.1	2.8	5.0	W.	
February.....	25	40	68	11	-25	33	15	0.3	3	0.8	0.6	3.8	3.0	N.	
Winter mean.....	27	42		12				1.0	8	1.1	1.7	12.8		N.	
March.....	35	51	79	19	-5	39	32	0.8	4	0.2	0.9	8.9	10.0	S.	
April.....	46	62	81	30	7	49	42	2.1	5	0.5	11.3	4.8	8.0	S.	
May.....	55	71	91	39	21	58	51	1.9	6	0.8	1.2	1.0	4.0	S.	
Spring mean.....	45	61		29				4.8	15	1.5	13.4	14.7		S.	
June.....	63	79	97	46	30	66	59	1.7	6	3.7	2.2	0.0	0.0	S.	
July.....	68	83	98	52	32	73	64	2.1	7	2.0	1.9	0.0	0.0	S.	
August.....	67	82	99	52	38	69	64	2.3	7	1.4	0.9	0.0	0.0	S.	
Summer mean.....	66	81		50				6.1	21	7.1	5.0	0.0		S.	
September.....	58	74	93	42	23	62	55	0.6	3	0.4	0.6	0.5	5.0	S.	
October.....	47	64	84	31	11	51	43	0.5	3	0.5	0.1	2.8	8.0	S.	
November.....	36	52	75	20	-14	40	30	0.1	2	0.1	0.2	1.1	2.0	S.	
Fall mean.....	47	63		31				1.2	8	1.0	0.9	4.4		S.	
Annual mean.....	46	62	99	30	-25			13.1	51	10.7	21.0	31.9	10.0	S.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Jan. 5, 6, 17, 22, 23; Feb. 3, 8, 10-13, 19-23; Dec. 25-27.	June 30; July 25, 26, 30; Aug. 8, 13.	1899	Jan. 4, 5, 28, 30, 31; Feb. 1-8, 10-12, 23; Dec. 11, 13-15.	June 18, 19; July 5, 11, 21, 22, 25, 31; Aug. 28; Sept. 1, 4, 5.
1895	Jan. 1, 25-29, 31; Feb. 6, 9-15; Mar. 13; Dec. 18, 24, 28, 30.	Aug. 16.	1900	Jan. 28; Feb. 8, 14-17; Dec. 28-31.	June 26; July 9, 12-14.
1896	Jan. 2, 3; Mar. 2; Nov. 26-29.	June 13, 14, 16; Aug. 7, 10.	1901	Jan. 1-3, 10, 11, 30, 31; Feb. 1, 2, 4-6, 8, 9; Dec. 13-15, 17.	June 23-30; July 3-5, 7-11, 14-20, 27, 28; Aug. 1, 6, 9, 23, 24, 27.
1897	Jan. 3, 23-27; Feb. and Mar. missing; Dec. 2, 15-21, 31.	July 6-8, 13, 28-31; Aug. 1.	1902	Jan. 25-31; Feb. 1, 2; Mar. 30; Dec. 3, 4, 7, 16.	June 10, 22, 24, 26; July 14-16, 25, 28-30; Aug. 1-4, 9, 15-17.
1898	Jan. 21, 25; Mar. 21, 22; Nov. 21; Dec. 8, 9, 12, 13, 23, 30, 31.	June 28, 30; July 17, 23, 26-28; Aug. 15, 29.	1903	Jan. 12; Feb. 4-7, 13, 15-17; Mar. 1; Nov. 17, 18.	June 28, 29; July 6, 9, 10, 14, 22, 24; Aug. 3, 4, 7, 21; Sept. 2.

COLORADO.

Western Valleys: MONTROSE COUNTY. Station: MONTRÖSE.

R. BUTTERFIELD, Observer.

[Established by the U. S. Signal Service February, 1885; discontinued as a regular Weather Bureau station October, 1893; reestablished as voluntary station October, 1895. Latitude, 38° 30' N. Longitude, 107° 56' W. Elevation, 5,795 feet.]

Montrose is situated in the broad valley of the Uncompahgre River, which opens to the north, and is surrounded on the east, south, and west sides by high plateaus some miles distant.

The height of the thermometers during the period of observation varied from 17 to 42 feet; the height of the rain gages from 1 foot to 34 feet. The mean temperatures were determined from observations at 4.48 a. m., 12.48 p. m., and 8.48 p. m., and from the extremes of temperature.

Temperature data are for the periods of observation February, 1885, to October, 1893, and October, 1895, to October, 1897; mean precipitation and total amounts for the driest and wettest years, from February, 1885, to October, 1893, and January, 1896, to December, 1903. The remaining data are for the period February, 1885, to October, 1893.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	
December.....	28	39	61	18	-17	38	21	0.8	6	0.2	1.8	6.2	S.
January.....	23	36	60	12	-20	28	19	0.6	6	0.5	0.9	8.0	SE.
February.....	31	43	62	19	-13	35	25	0.8	6	0.4	0.9	5.2	S.
Winter mean.....	27	39		16				2.2	18	1.1	3.6	19.4	SE.
March.....	39	52	72	27	- 2	44	33	0.8	8	0.5	1.1	7.7	SE.
April.....	48	62	80	35	17	53	43	1.0	8	0.1	0.6	1.1	SE.
May.....	57	72	90	43	28	60	54	0.7	6	0.5	1.2	0.0	SE.
Spring mean.....	48	62		35				2.5	22	1.1	2.9	8.8	SE.
June.....	66	83	94	52	35	69	62	0.2	2	0.6	0.1	0.0	SE.
July.....	72	87	98	58	46	74	66	0.8	8	0.2	1.6	0.0	SE.
August.....	69	84	97	55	40	72	16	1.2	9	2.3	1.1	0.0	S.
Summer mean.....	69	85		55				2.2	19	3.1	2.8	0.0	SE.
September.....	62	77	88	48	27	66	60	1.0	6	0.0	1.7	0.5	SE.
October.....	49	64	83	36	19	52	47	0.8	5	0.7	0.1	0.4	SE.
November.....	36	49	69	24	-18	41	29	0.6	5	0.1	T.	1.9	SE.
Fall mean.....	49	63		36				2.4	16	0.8	1.8	2.8	SE.
Annual mean.....	48	62	98	36	-20			9.3	75	6.1	11.1	31.0	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1885, TO OCTOBER 20, 1893.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1885	Jan. missing; Dec. 12, 13.	July 7, 8, 11-14, 30, 31; Aug. 1-4, 16-18.	1890	Jan. 13, 15, 16; Feb. 27, 28; Mar. 1, 12.	July 5-9, 15, 21, 22, 25-29; Aug. 6-8.
1886	Jan. 2-5, 7-10; Nov. 17, 18.	July 1-4, 6-18, 21, 26-28, 30; Aug. 1, 5, 6, 9-12, 14, 21, 22.	1891	Jan. 30; Feb. 9-11; Dec. 7, 8, 23, 25-27.	July 3, 17, 18, 20-22.
1887	Dec. 15, 16, 21-23.....	June 19-21, 25; July 5-8, 23-26; Aug. 6, 8, 19.	1892	Jan. 3, 11-14; Dec. 15, 17, 18.	June 21-23, 25, 26, 29, 30; July 1, 4, 5, 14, 18, 19; Aug. 1-5, 14-17.
1888	Jan. 8-10, 14-19.....	June 16, 17, 27, 28; July 3-6, 8-12, 14, 26-28.	1893	Jan. 20, 21; Feb. 15...	June 10, 11, 17, 18; July 1-4, 8, 9, 18-21; Aug. 4.
1889	Jan. 20, 22, 24, 27, 30; Feb. 18, 20.	June 30; July 1, 2, 5-7, 13-15, 22, 27-29, 31; Aug. 1, 4-7, 12-14, 24.			

COLORADO.

Central Mountain Region, Western Slope: GUNNISON COUNTY. Station: GUNNISON.

C. E. ADAMS, Observer.

[Established July, 1888. Latitude, 38° 33' N. Longitude, 106° 56' W. Elevation, about 7,648 feet.]

Gunnison is located at the confluence of the Gunnison and the Tomichi rivers, which flow in a southwesterly direction. The valley is from 1 to 4 miles in width, and on all sides the foothills rise gradually to snow-capped mountains. The station is situated in the northwestern part of the town, 1 mile east of the Gunnison River. Weather Bureau maximum and minimum thermometers are exposed in a standard shelter situated about 15 feet southeast of the observer's house. The bottom of the shelter is probably 3 feet above the ground. Previous to the installation of this shelter in February, 1900, the thermometers were exposed on the north side of a house, about 5 feet above ground. The readings of these instruments form the basis of the mean temperatures used. The rain gage is exposed in the open, 20 feet northeast of the shelter, the bottom of the gage being 12 inches above the ground.

Monthly and annual mean temperatures and highest and lowest monthly means, monthly mean precipitation, and total amounts for the driest and wettest years are for the periods July, 1888, to September, 1890, and July, 1893, to December, 1903. The remaining data are for the period July 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	13	30	58	- 6	- 35	25	1	0.5	4	0.4	0.9	6.5	5.0	W.
January.....	7	25	48	- 9	- 36	14	0	0.7	3	0.4	2.8	6.9	8.0	W.
February.....	14	31	55	- 5	- 44	23	4	0.7	4	0.8	0.3	7.8	16.0	W.
Winter mean.....	11	29		- 7				1.9	11	1.6	4.0	21.2		W.
March.....	26	42	62	9	- 29	34	18	0.6	4	0.5	0.2	6.6	6.1	W.
April.....	39	58	76	22	- 3	42	33	1.0	2	T.	0.1	5.1	6.0	W.
May.....	49	70	85	29	13	53	46	8.6	4	1.4	1.8	1.2	6.0	W.
Spring mean.....	38	57		20				2.2	10	1.9	2.1	12.9		W.
June.....	57	78	96	36	20	62	52	0.7	4	0.4	0.6	T.	0.0	W.
July.....	61	81	92	42	26	65	58	1.1	6	0.4	1.9	0.0	0.0	W.
August.....	60	80	93	41	20	63	56	1.1	7	1.4	1.1	0.0	0.0	W.
Summer mean.....	59	80		40				2.9	17	2.2	3.6	T.		W.
September.....	52	73	86	30	13	55	48	0.5	3	0.4	0.3	T.	T.	W.
October.....	41	63	78	20	5	45	38	0.5	3	0.6	1.3	1.2	4.0	W.
November.....	26	44	65	9	- 20	31	20	0.9	3	0.2	1.0	5.5	6.0	W.
Fall mean.....	40	60		20				1.9	9	1.2	2.6	6.7		W.
Annual mean.....	37	56	96	18	- 44			8.9	47	6.9	12.3	40.8	16.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1894	Jan. 3, 5-8, 10, 11, 13, 15, 16, 18-22, 25-31; Feb. 1-17, 23-25; Mar. 6, 7; Dec. 11-15, 18-20, 22-24, 29-31.	July 3, 10, 12, 13; * Aug. * 3, 15.	1899	Jan. 1, 2, 5, 6, 10, 11, 13-15, 17-25; Feb. 6, 7, 12-14, 19, 22, 27; Mar. *; Dec. 14, 15, 19-29.	June 16-19, 23-30; July 1, 5, 8-10, 24.
1895	Jan. * 1, 2, 7-12, 21; Feb. 1, 2, 4-17, 20, 21, 26, 27; Mar. 1, 7-12, 16, 17; Nov. 25-28; Dec. 2-10, 15, 17, 18, 22-31.	Aug. 23, 26, 29, 30; Sept. 11, 19, 20.	1900	Jan. 1, 2, 7-11, 18-29, 31; Feb. 1, 2, 6, 7, 9-11, 17, 18, 24, 28; Dec. *.	May 27; June 20-23, 25-30; July 7-15, 17-19, 21, 26, 27, 29-31; Aug. 1, 2, 5.
1896	Jan. 1, 3-10, 11-13, 15, 25-28; Feb. 1, 2, 4, 6-8, 12-27, 29; Mar. 1-8; Nov. 23, 26-29; Dec. 17-25, 28, 29.	June 7, 8, 13, 14*, 21, 22, 28, 30; July * 12-14, 22, 24, 25, 30; Aug. 2, 10, 11, 15-20, 24.	1901	Jan. 10, 11, 27, 28, 31; Feb. * 8-15; Dec. 13, 21, 28.	May 19; June 22-30; July 1-4, 7, 8, 11-22, 28, 30, 31; Aug. 1-3, 25.
1897	Jan. 1-8, 16-20, 22, 23, 27; Feb. 3, 9, 12, 13, 21-23, 25, 27; Mar. 22; Dec. 13, 14, 20-23*, 29-31.	June * 21, 25; July 7, 11, 14, 20, 27-29, 31; Aug. 1, 2, 5, 10, 12-14, 24, 25, 31.	1902	Jan. 18, 19, 21, 22, 24, 26-31; Feb. 1-5; Mar. 4, 5, 16; Dec. 3, 15-18, 21, 29-31.	June 23-25; July 14, 15, 24, 28-31; Aug. 1-4, 9.
1898	Jan. * 1, 11-20, 22, 25-27, 30, 31; Feb. 1, 2, 3, 5; Mar. *; Nov. 25, 26; Dec. 3-7, 10, 12-19, 22-31.	June * 16-21, 25, 26, 28-30; July 4, 10, 22-30; Aug. 3, 14, 19, 20, 28-30.	1903	Jan. 1-3, 9, 10, 12-20, 23, 24, 30, 31; Feb. 3-11, 13, 16, 18-22; Mar. 1-3, 7; Dec. 4-6, 15, 17, 25-31.	June 29; July 12, 25; Aug. 5, 6.

* Incomplete.

COLORADO.

Central Mountain Region, Eastern Slope: CHAFFEE COUNTY. Station: SALIDA.

M. D. L. BUELL, Observer.

[Established in October, 1897, although a partial record was made during a part of 1886-87. Latitude, 38° 32' N. Longitude, 106° 2' W. Elevation, 7,050 feet.]

The station is located eight blocks southwest of the depot of the Denver and Rio Grande Railroad and the Arkansas River, near the center of the residence portion of the city, and about half a mile northeast of the Little Arkansas River. The city is in the valley of the Arkansas, which here is about a mile wide northeast and southwest, surrounded on all sides by high mountains, several of the peaks rising above 14,000 feet. The river flows south-southeast, and is joined by the Little Arkansas about three-fourths of a mile below the city. Weather Bureau maximum and minimum thermometers are exposed in a standard shelter about 30 feet from the home of the observer, the bottom of the shelter being 5 feet above the ground. The readings of these instruments form the basis of the means given. The rain gage is exposed in the open, 20 feet from the shelter. The bottom of the gage is on the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS OCTOBER 1, 1897, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	28	45	70	10	-26	31	21	0.6	1	0.4	0.6	8.3	13.0	W.
January.....	28	45	65	12	-21	33	23	0.1	1	0.1	0.5	2.0	6.0	W.
February.....	29	45	64	13	-25	34	18	0.6	2	0.1	1.0	9.7	14.0	W.
Winter mean.....	28	45	66	12	-24	33	20	1.3	7	0.6	2.1	20.0	.....	W.
March.....	35	51	77	20	-13	41	32	0.4	4	0.3	0.5	5.2	5.0	W.
April.....	44	62	80	28	-2	46	42	1.7	4	T.	0.2	4.4	6.0	W.
May.....	54	70	87	35	20	61	50	0.9	4	1.6	2.3	2.5	8.0	W.
Spring mean.....	44	61	80	28	12	50	44	3.0	12	1.9	3.0	12.1	.....	W.
June.....	61	80	98	43	30	63	57	1.2	5	0.2	1.8	0.0	0.0	W.
July.....	66	85	96	47	30	69	65	1.6	8	0.6	3.0	0.0	0.0	W.
August.....	66	85	100	46	31	67	64	0.9	5	0.9	0.9	0.0	0.0	W.
Summer mean.....	64	83	98	45	31	67	62	3.7	18	1.7	5.7	0.0	.....	W.
September.....	58	78	92	37	21	59	55	0.5	2	1.3	0.1	0.2	1.0	W.
October.....	48	67	84	29	7	49	47	0.9	1	0.6	0.1	5.3	12.0	W.
November.....	39	57	75	21	-2	42	35	0.3	1	0.8	0.5	2.8	6.0	W.
Fall mean.....	48	67	80	29	12	50	45	1.7	6	2.7	0.7	8.3	.....	W.
Annual mean.....	46	64	100	28	-26	50	44	9.7	43	6.9	11.5	40.4	14.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 90° or above.	Year.	Minimum below -10°.	Maximum 90° or above.
1897	Dec. 20, 21.....		1901	Jan. 1, 2; Dec. 13, 14..	June 24, 26, 28-30; July 6, 7, 11-16, 18-22, 29-31; Aug. 1-3, 10, 13, 14, 26.
1898	Jan. 13, 22, 25, 26; Mar. 23; Dec. 10, 12, 13, 22, 31.	June 17, 28-30; July 26, 28-30; Aug. 11, 20, 21, 26-31.	1902	Dec. 15, 16.....	June 9, 22-25; July 14-16, 24, 28-31; Aug. 1-4, 9, 15, 18, 19; Sept. 6, 8.
1899	Feb. 6, 7, 11, 12; Dec. 14, 15, 19-22.	June 17, 19, 29, 30; July 9, 10, 24; Aug. 28.	1903	Feb. 4-7, 14-16; Mar. 1.	June 28; July 12; Aug. 5, 7, 22.
1900	Feb. 8; Dec. 31.....	June 19-23, 25-30; July 1, 7, 9, 11-14, 17, 18, 27, 28, 30, 31; Aug. 1, 2, 8, 12, 13, 15, 27-30.			

COLORADO.

Upper Arkansas Valley: PUEBLO COUNTY. Station: PUEBLO.

J. P. SLAUGHTER, Observer.

[Established by the U. S. Signal Service July 1, 1888. Latitude, 38° 18' N. Longitude, 104° 36' W. Elevation, 4 663 feet.]

The city is situated on the banks of the Arkansas River, about 40 miles east of the point at which it emerges from the mountains. The river flows a little south of east and is joined just beyond the city limits by the Fountain, which flows nearly south and passes through the northeastern section of the city. The surrounding country is of a general rolling, prairie character, with no hills of any considerable elevation in the immediate vicinity.

The thermometers have been exposed continuously in standard Weather Bureau shelters, which, together with the rain gages and wind instruments, have been erected on the roof of buildings in the north-central section of the city.

The sunshine data are from four years' record. Remainder of tabulated data is from the full period of observation, fifteen and one-half years, July 1, 1888, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.	
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.		Percentage possible.
												Average depth.	Greatest depth in 24 hours.							
December.....	33	47	74	19	-18	42	24	0.5	4	0.3	0.5	5.4	12.0	64	0.95	47	1.24	224	75	NW.
January.....	30	45	71	16	-23	37	24	0.4	4	0.1	0.4	4.1	10.0	64	0.83	47	1.11	245	80	NW.
February.....	31	45	72	17	-27	38	19	0.5	5	0.1	0.9	5.6	11.1	64	0.87	45	1.19	216	71	NW.
Winter mean.....	31	46	.....	17	.....	.....	.....	1.4	13	0.5	1.8	15.1	.....	64	0.88	46	1.18	229	75	NW.
March.....	40	55	82	26	-9	44	36	0.7	6	T.	0.6	5.1	7.2	61	1.13	31	1.18	267	72	NW.
April.....	51	65	86	36	15	54	47	1.3	6	0.3	0.9	1.4	4.2	59	1.62	28	1.61	272	69	NW.
May.....	60	73	93	46	24	62	56	1.9	7	0.4	2.4	0.2	3.0	62	2.44	31	2.40	310	70	SE.
Spring mean.....	50	64	.....	38	.....	.....	.....	3.9	19	0.7	3.9	6.7	.....	61	1.73	30	1.73	283	70	NW.
June.....	69	84	103	54	38	72	64	1.3	7	0.6	2.1	0.0	0.0	61	3.28	28	2.79	321	75	SE.
July.....	74	89	103	60	41	77	70	2.0	9	2.9	6.7	0.0	0.0	64	4.06	33	3.72	353	81	SE.
August.....	73	88	104	58	41	76	71	1.5	7	1.9	1.1	0.0	0.0	66	3.79	33	3.61	325	77	NW.
Summer mean.....	72	87	.....	57	.....	.....	.....	4.8	23	5.4	9.9	0.0	.....	64	3.71	31	3.37	336	78	SE.
September.....	65	80	98	49	28	69	62	0.4	3	0.1	T.	T.	0.2	59	2.58	28	2.40	309	83	NW.
October.....	52	68	88	37	19	55	50	0.8	4	0.2	1.5	0.6	7.0	59	1.68	31	1.72	269	77	NW.
November.....	40	55	81	25	-17	44	33	0.3	3	0.1	0.3	2.0	5.2	62	1.20	40	1.37	232	76	NW.
Fall mean.....	52	68	.....	37	.....	.....	.....	1.5	10	0.4	1.8	2.6	.....	60	1.82	33	1.85	270	79	NW.
Annual mean.....	52	66	104	37	-27	.....	.....	11.6	65	6.8	17.4	24.4	12.0	62	2.04	35	2.03	280	76	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6, 24; Feb. 4, 11, 12, 15, 23, 24; Dec. 26-31.	June 30; July 25-27.	1899	Jan. 1, 20, 31; Feb. 1-13; Mar. 27, 28; Dec. 13-15.	June 18, 19; July 5, 25, 31; Aug. 21, 27; Sept. 1, 3-6.
1895	Jan. 1, 2, 26, 28; Feb. 1, 7, 11-16; Mar. 14.	July 4, 5; Aug. 16, 17; Sept. 11, 13, 14, 16-18.	1900	Feb. 8, 12, 13, 16, 17; Dec. 29, 31.	June 26, 27, 30; July 1, 6, 9, 11-14, 18; Aug. 14-16.
1896	Nov. 27-30.	June 10, 13, 14, 24; July 1, 21, 23; Aug. 2, 3, 7, 9, 10, 12-15, 17, 20.	1901	Jan. 1-3; Feb. 4, 9; Dec. 13-15, 17.	June 23-26, 28-30; July 3, 4, 7-11, 14-18, 20, 28; Aug. 1, 25.
1897	Jan. 4, 25-28; Dec. 17, 20, 21.	June 19, 20, 24; July 6-8, 13, 27-30; Aug. 1, 25, 31; Sept. 1.	1902	Jan. 24-30; Feb. 2; Dec. 15, 16.	June 10, 22, 24, 26; July 14-16, 29; Aug. 1-4, 20; Sept. 7.
1898	Jan. 22-27; Mar. 23; Dec. 9, 10, 13, 14, 30, 31.	June 28, 30; July 1, 18, 22, 23, 26-28; Aug. 4, 12, 14, 15, 19-22, 29, 30.	1903	Feb. 14-17.	June 29; July 6, 9, 10, 13, 14, 20-22, 24, 25, 31; Aug. 3-5, 7, 21; Sept. 1.

COLORADO.

Eastern Plains Region, Arkansas Valley: BENT COUNTY. Station: LAS ANIMAS.

W. E. CULVER, Observer.

[Established October, 1881; from this date until June, 1888, the observations were made at the United States Signal Service station, and prior to that time by the surgeon at the military post of Fort Lyon, about 6 miles to the eastward, on the opposite side of the river. Latitude, 38° 4' N. Longitude, 103° 12' W. Elevation, 3,899 feet.]

Las Animas lies in the valley of the Arkansas River, 82 miles east of Pueblo, about 1 mile south of the river, and 2 miles above the junction of the Purgatoire and Arkansas rivers.

Weather Bureau thermometers are exposed in a standard instrument shelter, about 6 feet above the ground, in an open space, and probably 30 feet in each direction from the nearest obstruction. The rain gage is exposed on the ground in the same open space. The mean temperatures have been determined from observations at 7 a. m., 2 and 9 p. m.; at 5.07 a. m., 1.07 and 9.07 p. m., and from the daily extremes.

Monthly and annual mean temperatures, highest and lowest monthly means, monthly mean precipitation, and total amounts for the driest and wettest years are for the period of observation, 1867 to 1903 (except June, 1888, to September, 1889); the remaining data are for the periods January 1, 1882, to June 1, 1888, and January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	29	47	78	14	-24	42	10	0.4	8	1.2	0.1	6.0	14.0	W.
January.....	26	45	78	11	-26	35	13	0.2	8	0.0	T.	3.0	6.0	W.
February.....	31	48	77	13	-31	40	17	0.4	3	0.1	0.6	4.0	8.0	W.
Winter mean.....	29	47	77	13	-27	39	13	1.0	8	1.3	0.7	13.0	8.0	W.
March.....	41	59	84	23	-8	47	30	0.5	2	T.	0.1	3.0	6.0	W.
April.....	51	69	90	36	9	57	44	1.2	4	0.1	1.8	1.0	2.0	W.
May.....	62	78	97	44	28	69	54	1.9	6	1.2	2.2	0.0	0.0	E.
Spring mean.....	51	69	94	34	13	58	43	3.6	12	1.3	4.1	4.0	0.0	W.
June.....	72	87	105	54	34	79	64	1.4	4	T.	1.9	0.0	0.0	E.
July.....	77	92	105	56	45	83	71	1.9	6	0.1	6.3	0.0	0.0	E.
August.....	75	91	105	57	40	81	70	1.8	5	T.	3.0	0.0	0.0	E.
Summer mean.....	75	90	105	56	40	81	70	5.1	15	0.1	11.2	0.0	0.0	E.
September.....	55	74	103	48	24	72	54	0.9	3	0.1	0.6	0.0	0.0	E.
October.....	53	73	93	35	12	58	44	0.6	8	0.0	T.	1.0	12.0	E.
November.....	38	59	80	21	-16	45	29	0.2	2	T.	0.1	1.0	4.0	W.
Fall mean.....	52	72	91	35	12	58	44	1.7	8	0.1	0.7	2.0	4.0	E.
Annual mean.....	52	69	105	54	-31	72	54	11.4	43	2.8	16.7	19.0	14.0	W.E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6, 7, 24; Feb. 4, 5, 11-15, 24, 25; Dec. 26-29, 31.	June 18, 29, 30; July 1-5, 11, 12, 17, 23-27, 29, 30; Aug. 6-8, 12, 19.	1899	Jan. 1, 2, 29, 31; Feb. 1-13, 26, 27; Dec. 14, 15, 19, 20.	June 11, 12, 17-20, 30; July 4-6, 8, 10-12, 22, 25, 28, 31; Aug. 1, 2, 5, 9, 16, 18, 19, 25-30; Sept. 2-6, 13, 28, 31.
1895	Jan. 1-4, 26, 28-30; Feb. 1-3, 7-9, 11-16; Mar. 14, 15; Nov. 26; Dec. 19, 20.	May 8, 27; June 16, 21, 23, 24; July 4, 5, 15, 16, 29; Aug. 18, 26, 28; Sept. 5, 6, 8-14, 17-20.	1900	Feb. 8, 16, 17; Dec. 29, 31.	June 15, 21, 22, 26-30; July 1-3, 6, 9, 11-14, 18, 22, 23; Aug. 1-4, 7, 9-12, 14-17, 19, 20, 27, 28, 31.
1896	None.....	June 10, 12-19; July 1, 7, 15, 22, 24, 28, 29; Aug. 1, 3, 4, 6-16, 18, 19, 29, 30; Sept. 1, 7.	1901	Jan. 1-3, 31; Feb. 1, 9; Dec. 13-17, 21.	June 10, 22, 30; July 1-4, 6-12, 14-21, 24-28, 30, 31; Aug. 1, 2, 6, 8, 9, 23-28; Sept. 10, 26.
1897	Jan. 25-28; Dec. 17, 20, 21.	June 15, 19-23, 25, 29; July 2-8, 12, 13, 28-31; Aug. 1, 2, 4, 5, 25-28, 31; Sept. 1, 2, 4-7.	1902	Jan. 26-28, 30; Feb. 2; Dec. 18, 17.	June 9, 10, 14, 24-27; July 15-19, 23-25, 28-30; Aug. 1-4, 9, 12, 13, 15-20, 22; Sept. 4, 7.
1898	Jan. 23, 25, 26; Dec. 9, 10, 31.	June 2, 22-24, 27-30; July 1, 6-8, 16-30; Aug. 6, 12-22, 29-31; Sept. 30.	1903	Feb. 4-7, 14, 16; Mar. 2; Nov. 19.	June 28-30; July 2, 6-10, 13-16, 21-26, 28, 29, 31; Aug. 2-5, 7, 20-22; Sept. 6.

COLORADO.

San Luis Park, Northern Part: SAGUACHE COUNTY. Station: SAGUACHE.

J. TRACY MELVIN, Observer.

[Established September, 1886. Latitude, 38° 5' N. Longitude, 106° 8' W. Elevation, 7,740 feet.]

The station is near the center of the village, which lies at the mouth of a valley running northwesterly, and here opening into San Luis Park at its northwestern extremity. At this point the valley is about 1½ miles wide, narrowing to a canyon a fourth of a mile wide 6 miles to the westward.

Since April, 1900, the Weather Bureau maximum and minimum thermometers have been exposed in a standard shelter 30 feet to the rear of the observer's office, the bottom of the shelter being 5 feet above the ground. Previous to the use of the shelter the thermometers were exposed on a porch on the north side of the house. The rain gage is 6 feet above ground, and about 40 feet to the rear of the office and other buildings, and 30 feet east of the instrument shelter.

Monthly and annual mean temperatures and highest and lowest monthly means are for the periods of observation, September, 1886, to October, 1889, and from April, 1894, to December 31, 1903; monthly mean precipitation and total amounts for the driest and wettest years, September, 1886, to December, 1889, and from April, 1894, to December, 1903. The remaining data are for the period April 1, 1894, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
December.....	21	36	63	5	-26	28	10	0.2	2						W.
January.....	18	34	59	4	-23	26	11	0.2	2	0.1	0.3	2.7	3.0		W.
February.....	23	40	64	9	-13	20	13	0.3	2	0.0	0.8	2.6	8.0		W.
Winter mean.....	21	37		6				0.7	6	0.1	1.1	7.8			W.
March.....	33	47	69	17	-5	39	28	0.1	2	0.1	T.	1.4	4.0		W.
April.....	44	60	75	27	6	47	39	0.5	2	0.7	0.0	1.2	8.0		W.
May.....	52	68	83	34	16	55	49	0.8	4	0.6	1.3	0.1	1.0		W.
Spring mean.....	43	58		26				1.4	8	1.4	1.3	2.7			W.
June.....	60	76	92	43	28	63	57	0.9	4	0.2	2.5	T.	T.		W.
July.....	65	80	97	48	31	68	63	1.5	6	0.9	3.2	0.0	0.0		W.
August.....	63	79	94	47	35	65	60	1.3	6	0.8	3.1	0.0	0.0		W.
Summer mean.....	63	78		46				3.7	16	1.9	8.8	T.			W.
September.....	56	73	84	38	22	58	54	0.6	1	T.	0.3	T.	T.		W.
October.....	45	63	83	29	10	50	43	0.5	2	1.0	1.9	0.3	2.0		W.
November.....	33	49	69	18	-7	37	26	0.2	1	0.0	0.6	1.9	6.0		W.
Fall mean.....	45	62		28				1.3	7	1.0	2.8	2.2			W.
Annual mean.....	43	59	97	27	-26			7.1	37	4.4	14.0	12.7	8.0		W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD APRIL 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 85° or above.	Year.	Minimum below 0°.	Maximum 85° or above.
1894	(January, February, and March missing.) Dec. 24-26.	June 30; July 6, 8-11.	1899	Jan. 1-25; Feb. 3-8, 11-13, 26; Dec. 14, 15, 20.	June 18; July 1.
1895	Jan. 1, 7, 20, 21, 25-29, 31; Feb. 1-4, 11, 13-15; Nov. 25-27; Dec. 2-5, 8, 17, 18, 20, 23-31.	June 11.	1900	Jan. 29; Feb. 9; Dec. 23-30.	June 15, 19, 24, 26-28; July 1, 7, 10, 11, 14, 15, 17-19, 22, 24, 26, 28-31; Aug. 1, 3, 4, 7, 10, 13-16, 19, 20, 27, 29.
1896	Jan. 1-5; Feb. 6-8; Mar. 4; Nov. 26-29; Dec. 17, 18, 20, 27.	June 10.	1901	Jan. 1-4, 11, 12, 31; Feb. 2, 3, 10, 14; Dec. 13-16, 20, 21, 25, 27.	June 23, 25-30; July 1, 3-8, 11-20, 30, 31; Aug. 1-3, 9, 12, 14, 15, 24-26.
1897	Jan. 2-7, 15-18, 21-26, 29-31; Feb. 1, 2, 12-15, 20-24, 27; Mar. 13; Dec. 10, 15-18, 21-24, 30, 31.	None.	1902	Jan. 21, 22, 24, 26-31; Feb. 1-4; Mar. 5; Dec. 15-22, 26, 29-31.	June 24-26, 30; July 1, 14-16, 24, 27, 29, 30, 31; Aug. 1-5, 19.
1898	Jan. 9, 12-16, 18-22, 24-26, 30; Nov. 14; Dec. 3, 4, 6, 8-16.	June 28-30; July 1, 24, 25, 27, 30, 31.	1903	Jan. 1, 9, 12, 15-21, 24; Feb. 4-8; Mar. 1-2; Dec. 5, 6, 11, 27-29.	June 29, 30; July 2, 8, 12, 23, 25, 26, 28, 29; Aug. 4-7, 18, 22.

COLORADO.

Southwestern Valleys: LA PLATA COUNTY. Station: DURANGO.

L. S. BARNES, Observer.

[Established March, 1888. Latitude, 37° 16' N. Longitude, 107° 52' W. Elevation, about 6,517 feet.]

Durango is in the valley of the Las Animas River, which flows southerly. The valley is less than 1 mile wide in the limits of the town, but widens out to a mile or more 2 or 3 miles to the north. To the west and north the mountains rise above timber line; south and east the country is very broken. The town is surrounded by many peaks, high mesas, and canyons.

Since the spring of 1900, the Weather Bureau thermometers have been exposed in a standard shelter, located in the open, 50 feet southwest of the observer's house, the bottom of the shelter being 5 feet above the ground. The rain gage is about 8 feet northwest of the shelter; the bottom of the gage is 10 inches above ground. Previous to the use of the standard shelter the thermometers were exposed in a shelter in the north window of the second story of the high school building. The mean temperatures have been determined from the maximum and minimum readings.

Monthly and annual mean temperatures, and highest and lowest monthly means, and monthly mean precipitation and total amounts for the driest and wettest years, are for the period October, 1894, to December 31, 1903, with a broken record of a few months prior to this period included. The remaining data are for the period January 1, 1895, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	28	41	61	12	-12	33	19	1.7	3	0.1	2.0	13.0
January.....	27	41	60	13	-16	33	20	1.2	6	0.4	2.6	13.6
February.....	31	44	60	15	-18	38	24	1.1	5	0.8	3.7	13.4
Winter mean.....	29	42	60	13	-15	34	21	4.0	14	1.3	8.3	40.0
March.....	38	52	73	23	1	44	34	1.3	5	T.	2.7	7.5
April.....	47	63	79	30	0	50	44	1.0	4	0.6	0.4	2.3
May.....	54	71	88	36	15	57	52	1.0	6	2.0	3.2	0.6
Spring mean.....	46	62	80	30	10	50	44	3.3	15	2.6	6.3	10.4
June.....	63	82	95	42	16	67	60	0.7	4	0.4	0.4	0.0
July.....	68	85	95	51	35	70	66	1.5	9	1.0	1.4	0.0
August.....	67	84	90	51	31	70	63	1.7	8	2.0	0.9	0.0
Summer mean.....	66	84	90	48	27	69	63	3.9	21	3.4	2.7	0.0
September.....	59	76	89	42	20	62	54	2.0	6	0.3	3.6	0.0
October.....	49	65	82	33	6	52	47	1.7	5	1.2	3.9	0.2
November.....	37	53	73	23	-1	42	28	1.0	4	T.	0.1	4.5
Fall mean.....	48	65	80	33	10	51	44	4.7	15	1.5	7.6	4.7
Annual mean.....	47	63	99	31	-18	54	47	15.9	65	8.8	24.9	55.1

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	Jan. 25-27; Feb. 15, 16; Dec. 19, 25-27.	None.	1900	Dec. 23, 24, 29, 31.....	June 7, 20, 22, 24-30; July 7-15, 17-19, 21, 29; Aug. 1, 3, 13-15, 27-29.
1896	Nov. 23.....	Do.	1901	Jan. 1-3, 11-13, 30, 31; Feb. 1, 8, 11-14; Dec. 13.	June 27-29; July 5-20, 31; Aug. 1-4, 9, 12, 13, 25.
1897	Feb. 23, 24.....	July 13.	1902	Jan. 26, 27, 31; Feb. 2; Dec. 15, 16, 22, 29.	June 7-10, 21-25; July 14-16, 24, 28, 30, 31; Aug. 1-5, 8, 9, 20.
1898	Jan. 25, 26; Dec. 12-14, 19, 22-25, 30, 31.	June 27-30; July 24-31; Aug. 3, 11, 28.	1903	Feb. 3, 4, 7, 8.....	June 27-29; July 12, 15, 30; Aug. 5, 6, 14, 21.
1899	Jan. 1, 6, 10, 13-15, 17, 18, 21, 24; Feb. 6, 7; Dec. 14.	June 17-19, 28-30; July 1, 7, 9, 10, 24, 25.			

COLORADO.

San Luis Park, Southern Portion: COSTILLA COUNTY. Station: SAN LUIS.

PAUL B. ALBRIGHT, Observer.

[Established January, 1891. Latitude, 37° 12' N. Longitude, 106° 26' W. Elevation, 7,794 feet.]

San Luis is a Mexican plaza, located in the southeastern extremity of San Luis Park, on the Culebra River, about 18 miles from its junction with the Rio Grande. To the east, about 5 miles distant, is the Sangre de Cristo Range, whose peaks rise to a height of 13,000 to more than 14,000 feet; to the west and north are the plains of San Luis Park. Weather Bureau maximum and minimum thermometers are exposed in a standard shelter in the open, about 15 feet east of the observer's house, the bottom of the shelter being 4 feet above the ground. A standard shelter was placed in use in 1902, previous to which time the thermometers were exposed in a home-made shelter somewhat similar to that now in use. The rain gage is in the open, 20 feet east of the shelter, the bottom of the gage being 1 inch from the ground. The mean temperature has been determined from the daily maximum and minimum readings.

Monthly and annual mean temperatures, and highest and lowest monthly means, and monthly mean precipitation and total amounts for the driest and wettest years, are for the period of observation January 1, 1891, to December 31, 1903. The remaining data are for the period January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	22	40	58	5	-30	27	11	0.9	4	T.	2.6	8.7	9.0	SW.
January.....	20	39	57	2	-30	29	11	0.5	4	T.	0.4	4.2	3.5	SW.
February.....	24	42	63	6	-34	30	17	0.7	4	0.9	1.3	6.8	5.8	SW.
Winter mean.....	22	40		4				2.1	12	0.9	4.3	19.7		SW.
March.....	32	49	74	16	-27	39	27	0.9	5	0.5	2.6	6.3	5.5	SW.
April.....	42	60	80	25	-14	45	39	0.9	4	1.2	0.6	5.5	16.0	SW.
May.....	51	69	90	34	14	53	46	1.3	7	0.1	2.1	2.5	7.2	SW.
Spring mean.....	42	59		25				3.1	16	1.8	5.3	14.3		SW.
June.....	59	78	96	40	23	62	55	0.7	1	1.9	1.2	T.	T.	SW.
July.....	64	81	95	45	30	68	60	2.2	9	1.2	4.3	0.0	0.0	SW.
August.....	63	81	98	44	32	65	59	1.2	8	0.3	0.5	0.0	0.0	SW.
Summer mean.....	62	80		43				4.1	21	3.4	6.0	T.		SW.
September.....	56	75	97	37	17	60	52	1.2	6	0.8	2.6	0.2	2.0	SW.
October.....	45	65	87	26	6	47	41	1.0	1	0.0	0.4	1.7	5.5	SW.
November.....	34	52	69	15	-10	38	29	0.4	1	0.0	0.2	4.1	8.0	SW.
Fall mean.....	45	64		26				2.6	12	0.8	3.2	6.0		SW.
Annual mean.....	43	61	98	25	-34			11.9	61	6.9	18.8	40.0	16.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below -10°.	Maximum 85° or above.	Year.	Minimum below -10°.	Maximum 85° or above.
1894	Jan. 18, 20; Feb. 4, 5, 9, 25; Dec. 26.	June 13, 30; July 1-3, 7-13, 17, 25-27, 29; Aug. 4-7, 9-11, 13, 18.	1899	Jan. 1, 10, 11, 14, 15, 24; Feb. 7, 8, 12; Dec. 14, 15.	June 18; July 4, 11, 24-27, 31; Aug. 27, 29, 30; Sept. 2-6, 12.
1895	Jan. 11, 26; Feb. 12, 14-16.	June 14, 21, 25, 29, 30; July 4-7, 12-16, 18-20, 24-29; Aug. 2-6, 9, 10, 13, 15, 17-20, 24-28; Sept. 6-18, 25, 28.	1900	Feb. 8, 9; Dec. 29.	June 7, 20-22, 25-28; July 8, 11, 13, 14, 17, 18; Aug. 1, 2, 12-14, 27.
1896	Jan. 1, 2, 4-7; Feb. 7-9; Nov. 29; Dec. 19, 24.	May 23, 26-29; June 7-20, 22; July 2-8, 20, 21, 31; Aug. 1, 2, 4, 8-20, 30, 31; Sept. 5, 14-16; Oct. 2.	1901	Jan. 2, 3, 11, 31; Dec. 13, 14.	May 19; June 26-30; July 1, 3-7, 10, 11, 15, 16, 20; Aug. 3, 9, 13, 27.
1897	Jan. 1, 3-9, 18, 19, 27, 28; Feb. 12, 13, 15, 17, 21, 23, 24; Dec. 4, 6, 17, 21-27.	June 13, 20, 23, 25; July 7, 10-13, 25, 28-30; Aug. 5, 8-10, 12, 13, 15, 17, 18, 25, 26; Sept. 1, 2, 4, 12.	1902	Jan. 21, 27; Feb. 2; Dec. 16, 17, 21-23, 29-31.	June 10, 23-25; July 15, 30, 31; Aug. 1-3.
1898	Jan. 1, 2, 6, 12-23, 25, 26, 31; Feb. 3; Dec. 4, 9, 12-15, 22-26, 30, 31.	June 27; July 12, 22, 30; Sept. 19.	1903	Jan. 1, 11-15, 17-19, 21; Feb. 4-6, 8, 9, 16-19; Mar. 1, 2; Dec. 5, 6.	June 28, 29; July 13, 15; Aug. 22.

COLORADO.

South-Central District, Valley of the Purgatoire: LAS ANIMAS COUNTY. Station: HOEHNE (near).

S. W. DEBUSK, Observer.

[Established June, 1891. Latitude, 37° 14' N. Longitude, 104° 16' W. Elevation, about 5,700 feet.]

The station is in the valley of the Purgatoire River, about 4 miles southeast of Hoehne, on the south side of the river and 1 mile distant from it. Fifteen miles to the southwest are the Raton Mountains, rising to a height of about 9,000 feet; about 14 miles to the west and northwest the foothills of the Sangre de Cristo Range begin, while to the southeast, east, and northeast are the open plains. Since April, 1900, the instruments have been exposed in a standard shelter 30 feet north of the observer's home. The bottom of the shelter is 8 feet above the ground. The rain gage is exposed in the open, 10 feet northwest of the instrument shelter, the bottom of the gage being about 6 inches above the ground. Previous to the use of the shelter the thermometers were attached to a window casing on the north side of the dwelling, 7 feet above the ground. The mean temperatures have been obtained from the daily maximum and minimum readings.

Monthly and annual mean temperatures and highest and lowest monthly means, monthly mean precipitation, and total amounts for the driest and wettest years are for the period 1891 to 1903. The remaining data are for the period January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 30	° F. 50	78	° F. 14	° F. -29	° F. 41	° F. 19	In. 0.9	4	In. 0.7	In. 0.8	In. 6.6	In. 6.5	W.
January.....	30	47	80	14	-29	40	18	0.3	2	0.1	0.1	3.1	8.0	W.
February.....	30	47	74	14	-25	38	20	0.6	3	0.2	0.9	5.8	11.0	W.
Winter mean.....	30	48	.....	14	.....	.....	.....	1.8	9	1.0	1.8	15.5	.....	W.
March.....	39	57	84	22	-17	43	32	0.6	3	0.8	1.1	3.8	5.0	SW.
April.....	50	67	92	32	3	54	44	1.2	4	1.4	1.8	5.5	18.0	W.
May.....	59	77	98	41	16	64	52	2.0	5	2.3	1.3	0.0	0.0	W.
Spring mean.....	49	67	.....	32	.....	.....	.....	3.8	12	4.5	4.2	9.3	.....	W.
June.....	67	85	99	51	32	74	60	1.2	5	0.6	1.5	0.0	0.0	W.
July.....	71	88	99	55	31	76	68	2.0	7	0.1	2.1	0.0	0.0	W.
August.....	70	87	103	53	39	73	67	1.6	7	0.9	1.2	0.0	0.0	W.
Summer mean.....	69	87	.....	53	.....	.....	.....	4.8	19	1.6	4.8	0.0	.....	W.
September.....	63	80	98	46	24	67	59	1.0	3	0.3	3.2	0.0	0.0	S.
October.....	53	71	87	35	10	59	47	1.0	3	0.5	1.2	2.4	6.0	W.
November.....	41	60	80	24	-6	48	36	0.6	3	0.6	0.8	3.0	6.0	W.
Fall mean.....	52	70	.....	35	.....	.....	.....	2.6	9	1.4	5.2	5.4	.....	W.
Annual mean.....	50	68	103	33	-29	.....	.....	13.0	49	8.5	16.0	30.2	18.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 5, 23; Feb. 5, 11-14, 24, 25; Dec. 11, 12, 26.	July 25, 26.	1899	Jan. 1, 6; Feb. 2, 3-7, 11, 12; Mar. 28; Dec. 14.	Aug. 25, 28; Sept. 3, 4, 6.
1895	Jan. 26; Feb. 7, 10, 11; November and December partly missing.	July 4, 27; Aug. 7, 10, 24, 25; Sept. 4, 10-17.	1900	Feb. 8, 16-18; Dec. 28, 29, 31.	June 26, 27; July 12, 14, 18; Aug. 15.
1896	January missing; Feb. 5, 8; Nov. 27-30.	May 22; June 5-8, 10, 13-15, 18-21, 24, 28-30; July 3-5, 8, 9; Aug. 3, 8, 9, 11, 18-20.	1901	Jan. 1-3, 31; Feb. 3, 4, 9; Dec. 13-15.	June 23, 25, 28-30; July 7, 15, 17; Aug. 1, 2, 9.
1897	Jan. 3-6, 25-29; Dec. 16-18.	May, June, and July missing.	1902	Jan. 26-28; Feb. 2; Mar. 30; December missing.	June 10, 17, 23, 24, 26; July 14-16, 29-31; Aug. 1-4, 16, 18, 19; Sept. 7.
1898	Jan. 22, 23, 25-27; Nov. 22; Dec. 9-11, 13-15, 22, 24, 25, 31.	June 28, 30; July 26.	1903	Jan. 19, 21; Feb. 4-8, 13-17, 27; Mar. 1, 2; Nov. 17, 18; Dec. 5, 24, 25.	June 28, 29; July 2, 14, 24; Aug. 4-6.

COLORADO.

Southeastern Plains Region: BACA COUNTY. Station: BLAINE.

M. M. MYERS, Observer.

[Established January, 1891. Latitude, 37° 31' N. Longitude, 102° 15' W. Elevation, about 3,935 feet.]

The station lies about 40 miles south of the Arkansas River, on the plains. The surface is rolling, with some sand hills. The region is drained by three creeks, Butte, Horse, and Bear, which flow easterly. Maximum and minimum Weather Bureau thermometers are exposed in a standard instrument shelter, in the open, about 40 feet from the observer's home. The bottom of the shelter is 4 feet above the ground. The use of this shelter began in April, 1903. The shelter previously in use was not greatly different. The rain gage is in the open, about 30 feet north of the shelter, with the bottom close to the ground.

The mean temperatures have been determined from the daily maximum and minimum readings.

Tabulated data are for the following periods of observation: Monthly and annual mean temperatures and highest and lowest monthly means, from July, 1887, to July, 1888, and September, 1892, to December, 1903; monthly mean precipitation and total amounts for the driest and wettest years, from January, 1891, to December, 1903. The remaining data are from January 1, 1893, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	33	50	78	18	-18	42	24	0.7	3	0.1	0.1	5.6	10.0
January.....	32	50	80	16	-18	38	19	0.4	2	T.	0.2	2.8	5.0
February.....	31	47	78	15	-26	40	20	0.6	3	1.9	2.1	6.0	14.0
Winter mean.....	32	49		16				1.7	8	2.0	2.4	14.4	
March.....	41	60	88	23	-12	45	34	0.8	3	0.2	1.0	2.7	4.0
April.....	53	72	93	35	10	57	51	0.9	5	1.5	1.3	1.3	5.0
May.....	62	80	100	45	25	66	56	2.4	6	0.8	0.9	0.0	0.0
Spring mean.....	52	71		34				4.1	14	2.5	3.2	4.0	
June.....	72	88	110	56	35	75	66	2.0	6	1.7	0.8	0.0	0.0
July.....	77	93	111	61	40	82	72	3.0	8	1.0	4.6	0.0	0.0
August.....	76	92	111	59	39	80	69	1.9	6	2.8	5.2	0.0	0.0
Summer mean.....	75	91		59				6.9	20	5.5	10.6	0.0	
September.....	68	85	105	50	27	72	64	1.5	3	0.1	0.8	0.2	2.0
October.....	55	73	94	38	21	61	52	0.7	2	0.1	2.2	1.0	5.0
November.....	43	61	85	26	-4	46	38	0.4	1	0.2	T.	0.5	2.0
Fall mean.....	55	73		38				2.6	6	0.4	3.0	1.7	
Annual mean.....	54	71	111	37	-26			15.3	48	10.4	19.2	20.1	14.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6, 23; Feb. 3, 4, 10-12, 23; Dec. 25-28.	June 18, 26, 27, 29, 30; July 1-3, 12, 14-18, 22-31; Aug. 7, 8, 12, 13, 17, 19; Sept. 3.	1899	Jan. 30, 31; Feb. 1-12; Dec. 14, 15.	May 14, 15; June 1, 12, 13, 18-20; July 6, 7, 11, 12, 23, 26, 28, 31; Aug. 1-3, 7, 9-12, 16-19, 21, 22, 25-30; Sept. 1-6.
1895	Jan. 25, 27, 31; Feb. 6.	May 8, 9, 28; June 16, 23, 24; July 4, 5, 15-18, 28; Aug. 13, 16-18, 22, 26; Sept. 3, 5, 8, 10-14, 16-19.	1900	Record incomplete; Dec. 31.	June 6, 16, 21, 26-29; July 7, 9, 13, 15, 18, 22, 23, 28, 29, 31; Aug. 1, 2, 4, 10-18, 19-23, 26; Sept. 1.
1896	None.....	May 24, 27, 29, 30; June 3-6, 8, 10, 13-17, 24, 27, 30; July 1-3, 7, 8, 13, 21, 22, 24-31; Aug. 1-10, 11-17, 18-20, 29, 30; Sept. 1, 5-7.	1901	Jan. 1-3; Feb. 5, 9; Dec. 14-16.	June 10, 21, 23-30; July 1-4, 6-11, 13-20, 22, 24, 25, 27-30; Aug. 1-3, 6, 8-10, 13, 14, 17, 22-28; Sept. 21.
1897	Jan. 23, 26, 27; Dec. 15.	June 10, 15-24, 28; July 1, 2, 5, 9, 13, 21-23, 27, 31; Aug. 1-3, 7-31; Sept. 1, 3, 4.	1902	Jan. 26-28, 30; Feb. 2; Dec. 4.	May 2; June 6, 9-11, 14, 17, 22, 24-26; July 3, 12-17, 23-25, 28-30; Aug. 1-4, 7-9, 12-20, 22-25, 28, 29; Sept. 7, 15, 20, 25.
1898	Jan. 25; Nov. 21; Dec. 8, 9, 13, 30, 31.	June 24, 28-30; July 1, 5-7, 17-21, 23, 26-28; Aug. 12-14, 28, 29; Sept. 1-4, 6, 23-26.	1903	Feb. 7, 16, 17, 19; Mar. 1, 2; Nov. 18.	June 18, 28-30; July 1, 2, 5-14, 16, 20-25, 27-31; Aug. 1-7, 12, 20-23, 25-27; Sept. 2.



NEW MEXICO.

By R. M. HARDINGE,
Section Director.

NEW MEXICO.

New Mexico lies practically between the parallels of 32° and 37° north latitude and the meridians of 103° and 109° west longitude. In general its topography is that of an inclined plane sloping off to the south and east from altitudes of 7,000 feet and over in the north and west to about 3,000 feet in the southeast. Its higher levels are greatly diversified by lofty mountain ranges containing peaks that in a few instances are more than 13,000 feet above the level of the sea. The State is divided, approximately, as follows:

Altitudes of—	Square miles.
4,000 feet and less.....	6,996
4,000 to 5,000 feet.....	34,407
5,000 to 7,000 feet.....	57,503
7,000 feet and over.....	22,300
Total.....	121,006

The greater physical depressions, containing the principal rivers, open toward the south and east. The surface of the plains and mountains is scored and indented by deep canyons, many of which are of sufficient extent to exercise a very considerable influence upon the climate of the locality. It is sheltered on the north by the mountains of Colorado, some of the loftiest of the Rocky Mountain system, and on the west by the Continental Divide, which trends southward through its western borders, and lies open and inclined to the warmth of the south and east.

Its climate is dry and equable; the maximum of sunshine is in the fall and winter; the maximum of precipitation is in midsummer, during July and August. The daily variation of temperature is very great. Beneath the cloudless sky the porous sandy soil, barren of vegetation over large areas, is quick to receive the sun's heat and quick to give it up. High winds are frequent during the early part of the year, but destructive winds are rare. The only storm of record approaching the intensity of a tornado occurred in the extreme northeast portion. New Mexico is not included in the "tornado belt."

The scope of this article does not admit of a discussion of the various local influences affecting the climate of different localities, but the several stations whose records are appended hereto have been selected with a view of representing, as closely as may be possible at this time, the climate of that portion of the State in which the station is located. The climate of the northwestern half of the State in general, comprising the more elevated and mountainous portions, partakes of the nature of the typical climate of the "Rockies," modified by geographical position. The southeastern half in general, comprised mainly of sloping table-lands having scant vegetation and infrequent surface water, possesses a climate typical of the semiarid Southwest.

Unfortunately no mountain station has a sufficient length of record to afford a good illustration of the true mountain climate of northern New Mexico, but the records of Fort Union and Fort Wingate approximate, in a modified degree, the climate of the northern mountains as a whole, while Fort Bayard approximates that of the southwestern portion. Santa Fe best illustrates the climate where mountain and plain meet, although normal extremes of temperature and wind are here greatly modified by local influences. Albuquerque and Mesilla Park, situated in the agricultural sections of the central and southern Rio Grande Valley, illustrate the typical climate of this great physical depression with its wide range of seasonal temperature and its scarcity of precipitation. Albert and Roswell possess a climate typical of the semiarid portions of the great cattle country of the Southwest. Both stations lie close to the line of 15 inches of annual precipitation. Aztec shows the climate of the fertile San Juan Valley in the extreme northwest of the State and closely approximates the climate of the wider valleys of northern New Mexico and southern Colorado.

Temperature.—The annual mean temperature for the State is 54°. The average winter temperature is 36°; spring, 53°; summer, 72°; fall, 55°. The highest temperature recorded is 110° at Roswell; the lowest, 23° below zero at Aztec. Owing to the dryness of the air the extremes of temperature are not such potent factors in the comfort of animal life as the degrees registered by the thermometer would indicate. It is a noteworthy fact that 100° in the shade here is not so oppressive as a temperature of 85° in a humid climate. Sunstrokes are unknown in New Mexico. In a somewhat corresponding degree the cold of winter is felt less. Spring advances slowly, development being retarded by the cold nights as well as by the lack of moisture. In the late winter and early spring high winds frequently render outdoor life disagreeable. May, June, July, and August are characterized by extremes of heat during the middle of the day, but the nights are cool. The greatest extremes of summer occur in the canyons and deeper depressions where the sun beats down in the daytime and where the valley acts as a cold-air reservoir at night. The fall and early winter are most delightful. The days and nights usually are cloudless; the day temperatures are not oppressive, nor are the nights so cold as to be rigorous. At this season there is almost an entire absence of the strong winds that prevail during the late winter and early spring. The winter is comparatively mild and equable, although on the higher plateaus the daily range of temperature is often very great, frequently ranging from above 60° at midday to more than 10° below zero at night.

There is a clearly defined "wet season," beginning rather abruptly early in July, reaching its maximum the latter part of July or early in August, and more gradually decreasing to a minimum in March, during which month only 3 per cent of

the total annual precipitation occurs. About one-third of the total annual precipitation occurs during July and August. Over the Continental Divide and in the extreme north the wet season is not so clearly defined as over the southern, central, and eastern portions. In general the rains of the wet season occur in the afternoon as thundershowers of short duration. The showers are frequently torrential in character, badly washing the loose soil. The almost daily showers, occurring during the hottest part of the day and year, render midsummer a very pleasant season in the Southwest. The average annual precipitation of the stations named is 13 inches, which is believed to approximate closely the annual mean precipitation of the whole State. Over the valley of the Rio Grande, which is the driest portion of the State, there is an average of less than 9 inches a year, while over the higher mountain ranges both the winter and summer precipitation is much greater, probably averaging 25 inches and over at elevations of 10,000 feet and above. The summer showers are sometimes accompanied by severe hail, most frequently occurring over the more elevated plateau of northeastern New Mexico. The average frequency of hail on the plateaus above 6,000 feet elevation is about four times a year. There is an average of about two snowstorms of consequence a year over the plateau regions, usually occurring in February and March, and sometimes as late as April. At times the snow falls to a depth of more than a foot, but usually melts and disappears within twenty-four hours. On the highest mountain peaks, particularly in the north, snow is of frequent occurrence. Peaks above 12,000 feet altitude often remain snow-capped from November to April. The principal source of the steady water supply in the streams comes from the winter snows in the mountains, which drifts into the canyons to great depths.

In general the climate is such as to permit outdoor work and outdoor life the year around under conditions that are comparatively comfortable and pleasant. The windstorms that prevail during February, March, and April are the only serious drawback to the climate, which otherwise presents comfortable and healthful conditions the year around.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Bernalillo.....	Albuquerque.....	West.....	895	Quay (see Roswell).....	.....	East.....	.....
Chaves.....	Roswell.....	East.....	896	Rio Arriba (see Aztec).....	.....	Northwest.....	.....
Colfax (see Fort Union).....	.....	Northeast.....	.....	Roosevelt (see Roswell).....	.....	East.....	.....
Dona Ana.....	Mesilla Park.....	South.....	898	Sandoval (see Santa Fe).....	.....	Central.....	.....
Eddy (see Roswell).....	.....	Southeast.....	.....	San Juan.....	Aztec.....	Northwest.....	890
Grant.....	Fort Bayard.....	Southwest.....	897	San Miguel (see Fort Union).....	.....	East.....	.....
Leonard Wood (see Roswell).....	.....	East.....	.....	Santa Fe.....	Santa Fe.....	Central.....	891
Lincoln (see Roswell).....	.....	South.....	.....	Sierra (see Fort Bayard).....	.....	Southwest.....	.....
Luna (see Mesilla Park).....	.....	Southwest.....	.....	Socorro (see Fort Bayard).....	.....	West.....	.....
McKinley.....	Fort Wingate.....	Northwest.....	894	Taos (see Santa Fe).....	.....	Northern.....	.....
Mora.....	Fort Union.....	Northeast.....	892	Union.....	Albert.....	Northeast.....	893
Otero (see Mesilla Park).....	.....	South.....	.....	Valencia (see Albuquerque).....	.....	West.....	.....

TERRITORIAL SUMMARY.

Station.	Number.	Temperature.									
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Average number of days with—		
									Maximum above 90°.	Minimum below 32°.	
		° F.	° F.	° F.	° F.		° F.				
Aztec.....	1	50	66	34	104	August, 1902.....	-23	February, 1899.....	41	156	
Santa Fe.....	2	49	61	38	97	.....	-13	January, 1883.....	2	129
Fort Union.....	3	50	66	34	99	June, 1898.....	-21	February, 1903.....	5	161	
Albert.....	4	57	72	42	108	June, 1902.....	-6	February, 1895.....	63	114	
Fort Wingate.....	5	51	67	35	100	June, 1898.....	-15	do.....	25	159	
Albuquerque.....	6	56	70	42	104	July, 1899.....	-10	do.....	36	111	
Roswell.....	7	59	75	42	110	June, 1896.....	-14	do.....	100	88	
Fort Bayard.....	8	55	70	40	103	June, 1903.....	-1	January, 1898.....	16	112	
Mesilla Park.....	9	60	77	41	106	June, 1900.....	1	December, 1895.....	80	120	

Station.	Number.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Aztec.....	1	Oct. 2	May 4	Sept. 19	May 20	Inches. 8.1	Inches. 1.7	Inches. 2.3	Inches. 2.5	Inches. 1.6
Santa Fe.....	2	Oct. 19	Apr. 15	Sept. 25	May 18	14.2	2.7	6.2	3.3	2.0
Fort Union.....	3	Oct. 5	May 20	Sept. 11	July 4	18.2	3.1	9.9	3.7	1.5
Albert.....	4	Oct. 23	Apr. 16	Oct. 13	May 3	15.7	3.7	7.6	2.9	1.5
Fort Wingate.....	5	Oct. 2	May 12	Sept. 12	May 27	13.9	2.3	5.0	3.1	3.5
Albuquerque.....	6	Oct. 22	Apr. 8	Sept. 17	Apr. 23	7.2	1.3	3.4	1.5	1.0
Roswell.....	7	.....do.....	Apr. 15	Oct. 14	Apr. 30	15.8	1.8	7.6	4.9	1.3
Fort Bayard.....	8	Oct. 19	Apr. 27	Oct. 3	May 4	13.8	1.2	6.6	3.6	2.6
Mesilla Park.....	9	Oct. 26	Apr. 22	Oct. 20	May 22	9.4	1.0	4.8	2.4	1.2

NEW MEXICO.

San Juan Valley: SAN JUAN COUNTY. Station: AZTEC.

E. G. CONDIT, Observer.

[Established by the U. S. Weather Bureau in 1895; discontinued August, 1902. Latitude, 36° 48' N. Longitude, 108° 3' W. Elevation, 5,590 feet.]

This station was situated in a narrow valley, bordered on either side by hills rising to a height of from 100 to 300 feet, and thence stretching out into more or less level mesas for many miles.

The maximum and minimum thermometers are exposed in a shelter of the standard pattern, on the north side of a building, about 8 feet above the ground. The rain gage is exposed on the ground in a place free from obstruction.

The station was first established at the agricultural experiment station, but was moved into the village of Aztec in February, 1901, where practically the same exposure was had.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1895, TO AUGUST 31, 1902.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In. T.	In.	In.	In.	
December.....	26	41	62	11	-16	32	17	0.5	3		0.3	5.5	6.4	W.
January.....	27	41	60	13	-16	35	18	0.7	5	0.8	1.2	4.0	4.0	W.
February.....	32	47	68	17	-23	36	27	0.4	4	0.4	1.3	3.3	2.5	W.
Winter mean.....	28	43	.....	14	.....	.....	.....	1.6	12	1.2	2.8	12.8	.....	W.
March.....	40	56	75	24	10	44	36	0.5	3	0.1	0.9	2.5	2.0	W.
April.....	49	64	82	32	17	51	46	0.5	4	0.0	0.2	0.1	1.3	W.
May.....	58	76	95	41	18	60	55	0.7	5	1.1	1.6	0.0	2.0	W.
Spring mean.....	49	66	.....	32	.....	.....	.....	1.7	12	1.2	2.7	2.6	.....	W.
June.....	69	88	101	50	32	73	64	0.4	3	0.4	T.	0.0	0.0	W.
July.....	74	90	101	57	39	81	70	0.8	5	0.5	0.8	0.0	0.0	W.
August.....	72	89	104	56	38	77	69	1.1	5	0.4	0.5	0.0	0.0	W.
Summer mean.....	72	89	.....	54	.....	.....	.....	2.3	13	1.3	1.3	0.0	.....	W.
September.....	64	81	95	46	26	67	62	0.9	5	0.1	2.8	0.0	0.0	W.
October.....	52	68	85	35	10	53	49	0.9	5	0.0	1.5	0.0	0.0	W.
November.....	39	55	72	23	7	41	36	0.7	4	2.0	0.1	1.4	3.5	W.
Fall mean.....	52	68	.....	35	.....	.....	.....	2.5	14	2.1	4.4	1.4	.....	W.
Annual mean.....	50	66	104	34	-23	.....	.....	8.1	51	5.8	11.2	16.8	6.4	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO AUGUST 31, 1902.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	Jan. 25; Feb. 14-16; Dec. 18, 24, 29, 30.	May 8; June 12, 21, 22, 25-27; July 1, 5-8, 15-20, 24-30; Aug. 2-7, 9-11, 15-21; Sept. 7, 9, 12-17.	1899	Jan. 1, 6, 14-18, 20, 22-27; Feb. 6-8.	June 12, 17-21, 28-30; July 1-5, 8-10, 21, 22, 24-28, 31; Aug. 1, 25, 27-29, 31; Sept. 1-4.
1896	Feb. 4, 5; Nov. 26, 29...	May 27-29; June 8-24, 28-30; July 1-7, 11-13, 20, 21, 24, 29-31; Aug. 1, 2, 6, 8-20, 31; Sept. 1, 2, 5, 16.	1900	Dec. 28, 31.....	June 6, 7, 12, 13, 17, 19-22, 24-30; July 1, 6-14, 17-19, 24-31; Aug. 1-3, 8, 13-15, 28, 29.
1897	Dec. 21.....	June 20, 24-26; July 6, 7, 10, 12, 13, 21, 26-31; Aug. 10-15, 23-25, 29-31; Sept. 1.	1901	Jan. 2-4, 10, 11; Feb. missing; Dec. 13- 22, 27, 28.	June 16, 20, 21, 23-30; July 7-31; Aug. 1-17, 22; Sept. 6.
1898	Jan. 16, 19, 22, 25-27; Dec. 13-20, 22-28, 30, 31.	June 16-21, 25-30; July 9, 18, 22-31; Aug. 1-4, 11-15, 17-22, 28, 29; Sept. 26.	1902	Dec. missing.....	May 26; June 12-27, 30; July 1, 7-16, 19-31; Aug. 1-10, 15-22, 27, 31.

NEW MEXICO.

North Central Plateau: SANTA FE COUNTY. Station: SANTA FE.

C. E. LINNEY, Section Director.

[Established by the Signal Service in November, 1871. Latitude, 35° 41' N. Longitude, 105° 57' W. Elevation, 7,013 feet.]

This station is situated in the valley of the Santa Fe River, less than a mile from the lower foothills of the Santa Fe Range. To the north and east lies the mountain range, the crest about 10 miles distant, and varying in altitude above Santa Fe from 5,500 feet on the northeast to only a few hundred on the southeast. The land slopes away to the southwest at the rate of about 1,000 feet in 30 miles. Ridges of higher land running westward from the foothills inclose Santa Fe in a cup-like valley, opening to the southwest, the ridge on the north side being about 500 feet higher than the city, that on the south about 100. The country from the north to the east and southeast is mountainous for many miles.

The meteorological instruments are exposed in accordance with the approved rules of the Weather Bureau, the thermometers in a standard shelter 47 feet above ground, the rain gage with its top 39 feet above ground, and the anemometer with cups 50 feet above ground.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; humidity, sixteen years; sunshine, thirteen years; wind direction, thirteen years; frost, twenty-nine years. Remainder of data is from full period of observation, thirty years, January 1, 1872, to June 15, 1883; December 1, 1884, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	31	42	65	21	-13	40	24	0.7	5	0.3	0.6	6.1	5.5	61	0.99	47	1.07	228	76	NE
January.....	29	39	76	19	-13	36	22	0.6	6	0.8	1.1	4.7	7.5	61	0.86	44	0.97	231	74	NE.
February.....	32	43	75	22	-11	41	23	0.7	7	0.5	1.1	6.6	6.7	61	0.95	46	1.13	224	73	NE.
Winter mean.....	31	41	.....	21	.....	.....	.....	2.0	18	1.6	2.8	17.4	.....	61	0.93	47	1.06	228	74	NE.
March.....	40	52	82	29	0	53	42	0.7	6	0.8	2.1	4.5	5.8	53	1.07	31	1.06	278	75	SW.
April.....	47	60	84	35	11	52	42	0.8	6	0.4	0.9	3.1	10.5	45	1.24	24	1.12	306	78	SW.
May.....	56	69	88	44	24	62	53	1.2	7	0.2	4.4	0.2	3.0	47	1.79	25	1.59	332	76	SW.
Spring mean.....	47	60	.....	36	.....	.....	.....	2.7	19	1.4	7.4	7.8	.....	47	1.37	27	1.26	305	76	SW.
June.....	66	78	92	53	33	70	63	1.0	11	0.6	0.6	0.0	0.0	44	2.21	22	1.81	344	79	SW.
July.....	69	81	96	57	43	73	66	2.8	13	1.3	2.8	0.0	0.0	58	3.45	35	3.07	304	69	SE.
August.....	68	79	97	56	40	72	64	2.4	9	1.4	2.3	0.0	0.0	59	3.17	35	2.98	302	71	SE.
Summer mean.....	67	80	.....	55	.....	.....	.....	6.2	28	3.3	5.7	0.0	.....	54	2.94	31	2.62	317	73	SE.
September.....	61	73	90	49	27	65	56	1.5	7	0.7	2.5	0.0	T.	58	2.54	34	2.38	283	76	SE.
October.....	51	62	85	39	16	55	46	1.1	5	0.4	2.0	0.4	3.5	56	1.72	37	1.73	281	80	SE.
November.....	39	50	77	28	-11	44	29	0.7	4	0.4	0.1	2.8	5.0	54	1.14	42	1.24	239	78	NE.
Fall mean.....	50	62	.....	39	.....	.....	.....	3.3	16	1.5	4.6	3.2	.....	56	1.80	38	1.78	268	78	SE.
Annual mean.....	49	61	97	38	-13	.....	.....	14.2	81	7.8	20.5	28.4	10.5	55	1.76	30	1.68	279	75	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1894	Feb. 24.....	None.	1899	Feb. 7, 12.....	None.
1895	Jan. 28; Feb. 14-16....	Do.	1900	None.....	Do.
1896	None.....	Do.	1901	do.....	Do.
1897	Jan. 4.....	Do.	1902	do.....	June 24; July 30; Aug. 4.
1898	Jan. 22, 25.....	June 29.	1903	Feb. 16.....	None.

NEW MEXICO.

Northeastern Plateau: MORA COUNTY. Station: FORT UNION.

M. C. NEEDHAM, Observer.

[Established January, 1852, by post surgeon, U. S. Army. Latitude, 35° 54' N. Longitude, 104° 57' W. Elevation, 6,835 feet.]

This station is situated on the southeastern slope of an eastern spur of the Rocky Mountains in a well-defined valley of the lower foothills opening toward the southeast, the hills to the east and west rising to an elevation of from 300 to 600 feet within 2 to 3 miles; those to the west having a more abrupt rise to the same height.

The maximum and minimum thermometers are exposed in a shelter of the standard pattern set on posts and 5 feet above the ground in an open field.

The rain gage is exposed in an open field 5 feet above the ground.

Observations were taken by the post surgeons, United States Army, previous to 1895, when the present observer took charge.

Monthly mean temperature and highest and lowest monthly means and precipitation data are for a period of broken observations from January 1, 1852, to December 31, 1903. The remaining tabulated data are for the period 1895 to 1903, with the record for 1895 and 1896 incomplete.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December	34	51	73	21	- 6	47	22	0.6	2	0.1	T.	3.6	6.5	W.
January	31	51	76	18	- 5	44	16	0.5	1	0.4	0.2	1.4	3.0	NW.
February	36	50	75	18	-21	45	26	0.4	3	0.3	0.1	4.6	5.0	SW.
Winter mean	34	51		19				1.5	5	0.8	0.3	9.6		W.
March	40	55	80	22	-10	50	32	0.5	2	T.	0.8	3.6	6.0	NW.
April	48	63	79	30	10	56	41	0.8	4	0.1	0.7	0.7	3.0	NW.
May	57	70	85	38	22	63	48	1.8	11	0.1	9.7	0.0	0.0	SW.
Spring mean	48	63		30				3.1	14	0.2	11.2	4.3		NW.
June	65	79	99	48	33	73	58	2.2	8	0.3	3.4	0.0	0.0	SW.
July	70	82	95	52	33	80	65	3.8	11	2.5	2.4	0.0	0.0	SW.
August	67	82	97	52	43	75	61	3.9	10	0.5	4.3	0.0	0.0	SW.
Summer mean	67	81		51				9.9	28	3.3	10.1	0.0		SW.
September	61	76	92	44	27	68	54	2.1	6	0.4	1.2	0.0	0.0	SW.
October	51	68	87	34	12	60	46	1.0	4	1.2	6.4	0.3	2.0	SW.
November	40	61	80	26	5	55	30	0.6	2	0.5	0.0	1.2	7.0	SW.
Fall mean	51	63		35				3.7	12	2.1	7.6	1.5		SW.
Annual mean	50	66	99	34	-21			18.2	60	6.4	29.2	15.4	7.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1897	None	June 10.	1901	Jan. 1; Dec. 12, 13, 27.	June 28; July 8.
1898	Jan. 24; Dec. 9, 21, 23, 29, 30.	June 21, 24, 25, 29, 30; July 6, 8, 12, 27-30.	1902	Dec. 14.	June 14, 22-27; July 29, 30; Aug. 1-4, 15
1899	Feb. 5, 6, 10, 11; Mar. 27.	June 20, 21; July 5, 23; Aug. 9, 11, 12, 26, 27, 30; Sept. 1, 5, 6.	1903	Feb. 3, 15, 16, 28; Dec. 4.	18-20, 26, 27; Sept. 7, 8.
1900	Feb. 7; Dec. 28, 30, 31.	June 25, 26; July 13; Aug. 25, 26, 28, 29. (No record Aug. 4-24.)			June 30; July 1-3, 9, 10, 22, 24, 26-29; Aug. 4, 5, 13, 17-20, 24, 30.

NEW MEXICO.

Northeastern Plateau: UNION COUNTY. Station: ALBERT.

H. M. HANSON, Observer.

[Established by Signal Service in September, 1890. Latitude, 35° 56' N. Longitude, 103° 52' W. Elevation, 4,700 feet.]

This station is situated at the mouth of a canyon, with high mesas to the north and west and plains stretching out to the south and east.

The maximum and minimum thermometers are exposed in a standard "cotton-region" shelter, attached to the north side of a one-story adobe house, 2 feet below the board, tin-covered roof of a porch. The roof is partly shaded by the walls of a building projecting above it.

The rain gage is 25 feet north of a one-story house, with no other objects near it.

Tabulated data are for the period of observation January 1, 1891, to December 31, 1903, except all maximum and minimum temperature records, which extend from January 1, 1895, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 39	° F. 53	° F. 77	° F. 24	° F. 0	° F. 41	° F. 28	In. 0.8	2	In. 0.9	In. 0.2	In. 2.0	In. 4.0	SW.
January.....	37	51	74	24	- 3	42	31	0.2	2	0.3	0.2	1.1	2.0	W.
February.....	38	52	77	23	- 6	45	30	0.5	2	0.2	0.9	3.9	8.0	SW.
Winter mean.....	38	52		24				1.5	6	1.4	1.3	7.0		SW.
March.....	46	62	84	31	2	50	43	0.4	1	2.5	0.1	0.6	2.0	SW.
April.....	56	72	89	41	22	60	53	0.9	3	0.8	0.1	0.0	0.0	SW.
May.....	65	80	104	51	32	70	63	2.4	6	1.4	3.8	0.0	0.0	W.
Spring mean.....	56	71		41				3.7	10	4.7	4.0	0.6		SW.
June.....	74	89	108	61	46	77	66	2.2	7	0.2	2.4	0.0	0.0	SW.
July.....	77	91	102	62	50	82	74	3.2	8	0.8	11.5	0.0	0.0	SW.
August.....	77	92	103	61	51	80	74	2.2	6	1.0	2.2	0.0	0.0	SW.
Summer mean.....	76	91		60				7.6	21	2.0	16.1	0.0		SW.
September.....	70	84	100	54	37	73	67	1.5	3	0.3	0.0	0.0	0.0	SW.
October.....	58	73	91	44	26	60	54	0.9	4	2.0	1.2	T.	0.0	SW.
November.....	47	61	81	32	10	50	41	0.5	2	0.2	1.0	0.8	4.0	SW.
Fall mean.....	58	73		43				2.9	9	2.5	2.2	0.8		SW.
Annual mean.....	57	72	108	42	- 6			15.7	46	10.6	23.6	8.4	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°	Maximum 95° or above.
1895	Jan. 28; Feb. 13-15....	June 17, 23; July 5, 6, 18, 20; Aug. 7.	1900	Dec. 31.....	June 6, 7, 25-28; July 1-3, 6, 7, 9, 12-15, 18, 22; Aug. 12-16, 20-23, 24-26.
1896	None.....	May 22-31; June 7-16, 18-20, 23-25; July 7, 8, 15, 28, 29; Aug. 6, 9-17, 19; Sept. 8.	1901	None.....	June 18-21, 23-25, 30; July 1, 3, 4, 6-8, 10, 16-18; Aug. 25-29.
1897	.....do.....	June 9, 19-25; July 6-8, 13, 14, 26, 28-31; Aug. 1, 3, 6.	1902	.....do.....	June 9-11, 14, 17, 19, 22-26; July 2, 7, 14-16, 25, 29-31; Aug. 1-5, 8, 9, 15-21, 28-30; Sept. 5, 7, 10.
1898	.....do.....	June 2, 3, 21, 23-26, 28-30; July 18, 24, 27-30; Aug. 13, 15, 22; Sept. 3.	1903	Feb. 16.....	June 29, 30; July 1, 2, 7-11, 14-16, 20-25, 27-30; Aug. 4, 5, 7, 8, 12, 13, 21, 24, 26; Sept. 1-3, 8, 22.
1899	Feb. 7, 8, 11.....	June 8, 12, 13, 19-28; July 5, 6, 12, 21, 23, 24, 26, 27, 30; Aug. 1-3, 7, 9-12, 14-21, 25, 28-31; Sept. 1-5.			

NEW MEXICO.

Western Plateau: MCKINLEY COUNTY. Station: FORT WINGATE.

Post Surgeon, U. S. Army, Observer.

[Established by Post Surgeon, U. S. Army, in 1863. Latitude, 35° 30' N. Longitude, 108° 32' W. Elevation, 6,974 feet.]

This station is situated on the eastern slope near the crest of the Continental Divide, where the main mountain range dips to one of its lowest altitudes. To the southeast the Zuni Mountains rise to altitudes about 2,000 feet higher, and to the southwest stretches for many miles the great Zuni Plateau. To the north also rise higher elevations. It may be said that the station lies slightly to leeward of a great draw of the Continental Divide.

The maximum and minimum thermometers are exposed in a shelter of the standard pattern, erected on posts in front of the hospital, 8 feet above the ground.

The rain gage is exposed on the ground, 15 feet northwest of the hospital, a one-story building.

Monthly mean temperature and precipitation data in the following tables are from all available records since 1863; other data for the nine years, 1895-1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	33	50	69	16	- 8	45	24	1.0	3	0.9	2.0	3.9	8.0	W.
January.....	30	48	68	16	-10	38	18	1.0	4	0.5	0.8	9.5	6.0	W.
February.....	34	49	69	19	-15	44	26	1.5	4	1.4	11.2	6.2	6.0	SW.
Winter mean.....	32	48		17				3.5	11	2.8	14.0	19.6		W.
March.....	41	54	78	24	4	51	34	0.9	4	0.7	0.9	4.4	4.5	SW.
April.....	49	63	82	32	9	57	39	0.8	3	0.2	0.2	0.5	2.0	W.
May.....	59	73	94	40	11	66	45	0.6	4	0.0	0.2	2.0	1.0	W.
Spring mean.....	50	63		32				2.3	11	0.9	1.3	6.9		W.
June.....	68	83	100	50	29	75	60	0.6	2	0.0	3.2	0.0	0.0	W.
July.....	72	87	99	55	39	78	61	2.3	6	0.4	0.3	0.0	0.0	W.
August.....	70	86	99	54	41	77	62	2.1	7	0.3	2.6	0.0	0.0	W.
Summer mean.....	70	85		53				5.0	15	0.7	6.1	0.0		W.
September.....	63	80	94	48	26	68	58	1.3	5	0.8	3.6	0.0	0.0	W.
October.....	52	69	87	35	15	60	47	1.0	4	0.7	0.5	0.0	0.0	W.
November.....	41	60	81	26	0	50	31	0.8	3	0.5	0.6	6.3	12.0	SW.
Fall mean.....	52	70		36				3.1	12	2.0	4.7	6.3		W.
Annual mean.....	51	67	100	35	-15			13.9	49	6.4	26.1	32.8	12.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 90° or above.	Year.	Minimum below 0°.	Maximum 90° or above.
1895	Jan. 26, 27; Feb. 14-16; Nov. 26; Dec. 25-27, 29, 30.	June 24-27; July 2, 7-9, 16-18, 25, 26, 29, Aug. 17-23, 26; Sept. 1, 2, 12-14, 16-18, 27.	1899	None.....	June 18-20, 23, 30; July 1, 2, 22, 28, 31; Aug. 1, 25, 28-30; Sept. 2-6.
1896	Feb. 7, 8, 13; Nov. 29.	May 28-30; June 6, 10-20, 23, 25, 28-30; July 1-4, 6, 8, 10-15, 18, 21, 25, 26, 31; Aug. 1, 2, 9-21, 31; Sept. 1, 4, 5, 8, 16, 17.	1900	Jan. (no record); Feb. 9; Dec. 29.	June 7, 8, 19-23, 25-30; July 1, 7-20, 26, 27, 29-31; Aug. 1-3, 14, 28-30.
1897	Feb. 23, 24; Dec. 4, 22.	July 13-15, 21, 26, 30; Aug. 1, 12, 15, 16, 26, 30, 31.	1901	Jan. 2, 11, 12; Dec. 13.	June 17, 22, 26-30; July 1, 4-8, 10-20, 27, 28; Aug. 1-4, 7, 9-13, 17, 25-28; Sept. 17.
1898	Jan. 15, 19, 21, 22, 25, 26; Dec. 13, 24.	June 17-19, 22, 25-30; July 1, 9, 14, 15, 22, 24-31; Aug. 1, 2, 7, 13-16, 29; Sept. 10, 27.	1902	Jan. 27; Dec. 16.	May 26; June 23-27; July 15, 17, 30, 31; Aug. 1-6.
			1903	Feb. 4.	None.

NEW MEXICO.

Central Rio Grande Valley: BERNALILLO COUNTY. Station: ALBUQUERQUE.

UNIVERSITY OF NEW MEXICO, Observer.

[Established by the Signal Service in January, 1893. Latitude, 35° 5' N. Longitude, 106° 39' W. Elevation, 5,200 feet.]

This station is situated upon a level mesa that rises more or less abruptly to a height of 200 feet from the water-level valley of the Rio Grande about 2 miles distant. The view is unobstructed to the south and west for many miles, but to the north and northeast, at a distance of about 8 miles, the Sandia Mountains rise to an elevation above the plateau of about 2,500 feet. The country is more or less broken to the east, but at a varying distance of from 10 to 20 miles.

The maximum and minimum thermometers have been variously exposed; sometimes in a shelter on the north side of a cool veranda, at other times without a shelter, but hung up on the north side of a house, beneath the roof of the veranda, which afforded a fair exposure. The rain gage is exposed in an open and unobstructed place.

Tabulated data are included within the period of observation January 1, 1893, to December 31, 1903, excepting the monthly mean temperature and mean precipitation, which are for thirty-one and twenty-six years, respectively.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 34	° F. 47	° F. 69	° F. 21	° F. 3	° F. 44	° F. 26	In. 0.3	2	In. 0.8	In. 0.6	In. 1.5	In. 4.0	S.
January.....	34	46	70	23	0	42	22	0.4	4	0.3	0.6	2.1	2.5	N.
February.....	38	52	70	26	-10	47	31	0.5	3	T.	0.7	1.7	3.0	NW.
Winter mean.....	35	48		23				1.0	9	1.1	1.3	5.3		S.
March.....	47	61	89	32	12	51	41	0.2	2	T.	0.2	1.3	5.0	NW.
April.....	56	70	85	40	13	60	50	0.3	2	0.0	0.3	T.	0.3	S.
May.....	65	80	95	50	30	74	61	0.8	5	0.2	0.6	0.0	0.0	S.
Spring mean.....	56	70		41				1.3	7	0.2	1.1	1.3		S.
June.....	74	89	104	59	42	82	68	1.2	4	T.	0.3	0.0	0.0	S.
July.....	78	91	104	63	44	83	73	1.3	6	1.2	1.5	0.0	0.0	S.
August.....	75	89	99	61	45	80	72	0.9	5	0.7	1.8	0.0	0.0	S.
Summer mean.....	76	90		61				3.4	15	1.9	3.6	0.0		S.
September.....	68	81	94	53	30	76	64	0.8	5	0.6	1.2	0.0	0.0	S.
October.....	56	71	85	41	24	64	52	0.4	4	T.	2.0	0.7	3.0	S.
November.....	43	59	76	30	7	50	35	0.3	2	1.1	1.0	0.6	5.0	S.
Fall mean.....	56	70		41				1.5	11	1.7	4.2	1.3		S.
Annual mean.....	56	70	104	42	-10			7.2	42	4.9	10.2	7.9	5.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 28, 29; Feb. 13-17; Dec. 30.	July 5, 7.	1900	Dec. 29, 31.....	June 21, 24, 26-29; July 1, 2, 6, 7, 9-15, 17, 18, 28, 29.
1896	None.....	May 28; June 8-11, 13-19.	1901	Jan. 2-4.....	June 18, 25, 27-30; July 1, 4-6, 8, 13, 16, 17
1897	Jan. 3, 4, 6, 8.....	June 25.	1902	None.....	June 22-28; July 30; Aug. 1, 2, 4, 5.
1898	Jan. 22, 23, 25, 26; Dec. 12-14, 26.	June 26, 28-30; July 8, 26-30.	1903	Feb. 7, 8, 16, 17; Nov. 18; Dec. 17.	June 27-30; July 1, 10, 11, 22-26, 29-31; Aug. 1, 2, 5-7, 18, 21.
1899	Jan. 1; Feb. 7, 12; Dec. 15.	June 10, 13, 14, 18, 19, 26, 28, 30; July 22, 25.			

NEW MEXICO.

Lower Pecos Valley: CHAVES COUNTY. Station: ROSWELL.

W. M. REED, C. E., Observer.

[Established by U. S. Weather Bureau in June, 1894. Latitude, 33° 25' N. Longitude, 104° 30' W. Elevation, 3,570 feet.]

This station is situated in the valley of the Rio Hondo, an intermittent water course emptying into the Pecos River some 8 miles to the east. The country is more or less rolling prairie, stretching to the north and west for many miles into higher and higher mesas. Climatically the location is the northwestern edge of the Staked Plains.

The maximum and minimum thermometers are exposed in a shelter of the standard pattern erected on posts in an open lot. The rain gage is exposed on the ground in an open lot.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 40	° F. 56	° F. 77	° F. 23	° F. - 3	° F. 44	° F. 33	In. 0.4	2	In. 0.6	In. 1.4	In. 2.4	In. 7.0	SW.
January.....	40	55	80	24	- 4	43	32	0.5	1	0.6	0.3	3.1	6.0	SW.
February.....	42	58	82	25	- 14	45	34	0.4	1	0.1	0.9	2.3	8.0	SW.
Winter mean.....	41	56	.....	24	.....	.....	.....	1.3	4	1.3	2.6	7.8	.....	SW.
March.....	52	70	89	32	14	55	50	0.2	1	T.	T.	0.0	0.0	SW.
April.....	60	78	94	37	20	64	56	0.4	2	T.	0.3	0.0	0.0	SW.
May.....	68	86	107	51	33	74	67	1.2	4	0.1	1.0	0.0	0.0	SW.
Spring mean.....	60	81	.....	40	.....	.....	.....	1.8	7	0.1	1.3	0.0	.....	SW.
June.....	76	91	110	59	45	81	69	2.0	6	2.0	6.0	0.0	0.0	SE.
July.....	77	90	106	63	54	79	75	3.4	9	1.8	6.5	0.0	0.0	SE.
August.....	77	93	103	62	49	79	72	2.2	5	0.4	3.0	0.0	0.0	SW.
Summer mean.....	77	91	.....	61	.....	.....	.....	7.6	20	4.2	15.5	0.0	.....	SE.
September.....	71	85	101	54	35	73	68	2.0	5	2.0	0.7	0.0	0.0	SW.
October.....	59	77	93	42	19	62	57	1.6	4	5.5	T.	0.0	0.0	SW.
November.....	48	65	87	31	10	50	45	1.3	2	0.0	0.5	0.4	1.5	SW.
Fall mean.....	59	76	.....	42	.....	.....	.....	4.9	11	7.5	1.2	0.4	.....	SW.
Annual mean.....	59	75	110	42	- 14	.....	.....	15.6	42	13.1	20.6	8.2	8.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Jan. 27-30; Feb. 7, 14-17; Dec. 26, 30.	May 7-9, 14, 27, 28; June 11, 14-17, 23-25, 28; July 4-7, 14-21, 27-29; Aug. 2-4, 9, 10, 12-14, 17, 22, 27; Sept. 4-6, 9-12, 14, 15, 19, 20, 26.	1900	Feb. 17, 18; Dec. 29...	June 6, 7, 16, 17, 21, 22, 25-28; July 1, 2, 15, 24; Aug. 11-15, 23, 24, 26-29; Sept. 10, 14.
1896	Jan. 1, 4.....	May 5, 16-30; June 2-10, 13-24; July 10, 21, 23-25, 27, 29-31; Aug. 1-21, 29, 30; Sept. 2, 5-9, 16, 17.	1901	Feb. 13, 14; Dec. 14, 16.	June 7-9, 16, 18-26; July 3, 4, 6-8, 10, 15-17, 31; Aug. 4, 6, 9-11, 13-15, 17, 21, 24-30; Sept. 1, 15, 27.
1897	Jan. 4-7, 27; Dec. 4....	June 8, 9, 14-18, 22-25; July 3, 5-8, 14, 15, 17-19, 25, 26, 29; Aug. 6, 9.	1902	Jan. 27.....	May 23, 24, 31; June 1, 12-14, 17-19, 23-29; July 2-6; Aug. 5, 18, 19; Sept. 8, 10.
1898	Jan. 1, 2, 19-22; Nov. 22; Dec. 4, 9-15, 24.	May 23, 29; June 2, 3, 25, 26; July 18, 22-24, 27-30; Aug. 18; Sept. 3, 4, 13, 15, 23, 24.	1903	Jan. 12; Feb. 16, 17; Nov. 18; Dec. 6, 15-17, 30, 31.	June 21, 23, 24, 29, 30; July and Aug., no record.
1899	Jan. 23, 24, 31; Feb. 6, 7, 11-13.	May 12, 14, 25, 30, 31; June 7, 8, 11-13, 19, 20, 27; July 4-6, 21, 22, 27, 31; Aug. 1-3, 10-16, 18-22, 25-27, 29-31; Sept. 1, 2.			

NEW MEXICO.

Southwestern Upper Plateau: GRANT COUNTY. Station: FORT BAYARD.

POST SURGEONS, U. S. ARMY, Observers.

[Established 1867. Latitude, 32° 48' N. Longitude, 108° 9' W. Elevation, 6,040 feet.]

This station is situated near the foot of the high Black Range Mountains, where the foothills run into rolling prairies, stretching southward to lower levels, and to the lower level Mimbres Valley some 20 miles to the east and southeast.

The maximum and minimum thermometers are exposed in a shelter of the standard pattern, set up on posts, 4 feet above the ground, and 40 feet from any building.

The rain gage has a free and unobstructed exposure.

Records of monthly mean temperature and precipitation are available from January, 1867 (except from 1878 to 1895, inclusive); the remaining tabulated data are for the past nine years only, 1895 to 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	40	54	71	25	5	47	34	0.8	2	0.2	0.7	1.7	4.0	NW.
January.....	38	52	68	25	1	44	33	0.9	3	0.6	1.8	2.3	3.0	W.
February.....	40	55	80	26	6	47	34	0.9	3	0.1	5.7	3.2	3.0	W.
Winter mean.....	39	54		25				2.6	8	0.9	8.2	7.2		W.
March.....	46	61	80	31	9	56	39	0.6	2	0.1	1.7	1.1	3.0	W.
April.....	53	68	83	38	15	59	46	0.3	2	0.1	2.3	0.2	1.5	W.
May.....	62	77	95	44	29	70	51	0.3	1	0.0	0.9	0.0	0.0	SW.
Spring mean.....	53	69		38				1.2	5	0.2	4.9	1.3		W.
June.....	71	87	103	54	33	76	65	0.7	3	0.1	0.3	0.0	0.0	W.
July.....	73	86	97	59	49	77	69	3.1	12	0.1	2.1	0.0	0.0	SE.
August.....	72	85	97	58	50	74	68	2.8	9	0.2	2.4	0.0	0.0	W.
Summer mean.....	72	86		57				6.6	24	0.4	4.8	0.0		W.
September.....	67	81	100	52	40	72	63	2.0	6	2.3	0.8	0.0	0.0	W.
October.....	57	70	85	41	23	64	53	1.0	4	0.8	1.0	0.7	5.0	SW.
November.....	47	62	81	33	14	52	42	0.6	2	1.3	0.6	0.1	1.0	SW.
Fall mean.....	57	71		42				3.6	12	4.4	2.4	0.8		SW.
Annual mean.....	55	70	103	40	- 1			14.0	49	5.9	20.3	9.3	5.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Feb. 15-17; Dec. 25, 30, 31.	None.	1899	Feb. 7, 8, 12, 13.....	June 28; Sept. 2, 3.
1896	None.	May 29, 30; June 10, 12, 15-19.	1900	None.	June 19, 21, 23, 25-28; July 10, 13, 16; Aug. 13-16.
1897	Feb. 14; Mar. 22, 23, 30; Dec. 11.	June 25; July 16.	1901	.....do.....	July 5.
1898	Jan. 13, 15, 16, 22, 23, 25, 26; Dec. 31.	July 28-30.	1902	.....do.....	June 23-25.
			1903	Feb. 3, 15.....	June 26-29; July 10, 12, 24, 29, 30.

NEW MEXICO.

Lower Rio Grande Valley: DONA ANA COUNTY. Station: MESILLA PARK.

DIRECTOR AGRICULTURAL EXPERIMENT STATION, Observer.

[Established by the Weather Bureau in 1892. Latitude, 32° 15' N. Longitude, 106° 17' W. Elevation, 3,500 feet.]

This station is situated in a broad valley of the Rio Grande about 5 miles wide. To the west the elevation rises more or less abruptly to altitudes 1,000 to 2,000 feet greater within a distance of 50 miles; to the east, within 10 to 15 miles the Organ Mountains, paralleling the valley of the Rio Grande for many miles to the northward, rise boldly from the surrounding mesas. The location is typical of the Southern Rio Grande Valley.

The maximum and minimum thermometers are exposed in a shelter of the standard pattern, erected on posts, about 8 feet above the ground, in the open.

The rain gage has an open and unobstructed ground exposure.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO NOVEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	° F. 42	° F. 58	75	° F. 22	° F. 1	° F. 45	° F. 36	In. 0.5	2	In. 0.7	In. 0.1	In. 1.0	In. 4.2	N.
January.....	42	58	73	24	7	45	37	0.3	2	0.1	0.3	0.3	2.0	W.
February.....	44	62	81	26	2	48	40	0.4	2	0.1	1.0	0.3	0.7	W.
Winter mean.....	43	59	.....	24	.....	.....	.....	1.2	6	0.9	1.4	1.6	.....	W.
March.....	52	70	89	32	12	55	49	0.3	2	0.3	0.6	0.1	0.5	W.
April.....	59	77	92	39	21	62	52	0.2	1	T.	0.3	0.1	1.0	W.
May.....	67	86	101	47	27	69	62	0.5	2	T.	T.	0.0	0.0	W.
Spring mean.....	59	78	.....	39	.....	.....	.....	1.0	5	0.3	0.9	0.2	.....	W.
June.....	76	94	106	56	36	78	72	0.6	4	T.	1.1	0.0	0.0	W.
July.....	79	93	105	63	51	80	76	2.2	10	0.6	2.2	0.0	0.0	W.
August.....	77	92	102	61	47	80	74	2.0	9	4.2	1.4	0.0	0.0	W.
Summer mean.....	77	93	.....	60	.....	.....	.....	4.8	23	4.8	4.7	0.0	.....	W.
September.....	71	88	101	54	35	74	68	1.2	5	0.2	1.2	0.0	0.0	SW.
October.....	60	77	91	41	20	62	56	0.8	3	0.5	2.8	0.0	0.0	SW.
November.....	48	68	82	29	9	52	43	0.4	1	0.0	1.0	0.6	4.5	W.
Fall mean.....	60	78	.....	41	.....	.....	.....	2.4	9	0.7	5.0	0.6	.....	SW.
Annual mean.....	60	77	106	41	1	.....	.....	9.4	43	6.7	12.0	2.4	4.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Feb. 7, 14, 15; Dec. 18, 25, 27, 29-31.	May 7-9; June 11, 12, 16, 24-26, 29; July 1, 2, 5-7, 16-19, 29; Sept. 6, 11, 12.	1900	None.....	May 23-25, 27-31; June 1, 4-8, 10-30; July 1-3, 6, 10-18, 22-25, 27-29; Aug. 3, 4, 6-8, 11-17, 21-23, 25-30; Sept. 12-17.
1896	Jan. 3, 5; Feb. 7, 8.	May 22-29; June 3, 5, 7-11, 13-24, 26; July 9; Aug. 10, 11, 16, 17, 19, 20, 29-31; Sept. 2, 5.	1901	do.....	May 19; June 7, 8, 16-27, 29, 30; July 1, 4-13, 16-18, 31; Aug. 3-17, 20-29, 31; Sept. 1, 2, 9, 15, 16.
1897	Jan. 5, 6, 8; Dec. 4, 6, 11, 14.	June 8, 18-26, 29; July 5-7, 14-17; Aug. 6, 8, 9, 28, 29.	1902	do.....	May 24-26, 29, 30; June 3, 4, 6-20, 22-30; July 2, 5-7, 9, 25-31; Aug. 1-4, 19, 20.
1898	Jan. 17, 20, 22, 23, 25. Nov. 22; Dec. 24, 25.	June 16, 28-27; July 18, 23, 24, 27-31; Aug. 2, 16-18, 25; Sept. 4.	1903	Feb. 4.....	June 19-21, 24, 26-30; July 1-4, 7-11, 17, 18, 21-26, 28-31; Aug. 1, 2, 5, 9, 17, 18, 22; Sept. 4, 5.
1899	Jan. 1, 7, 24; Feb. 7, 8, 12, 13.	June 8, 9, 11, 12, 14, 19-22, 27, 28; July 2-7, 12-14, 23, 27, 28; Aug. 12-16, 18-22, 25-31; Sept. 1-4, 24, 27.			

ARIZONA.

By MONTELLO E. BLYSTONE,
Section Director.

ARIZONA.

With regard to its physical features Arizona may be divided into two divisions, the northern plateau region and the southern valleys and plains. The line of demarcation between these divisions, however, is not distinctly drawn. From the lowest point, which is in the extreme southwest portion of the Territory, the surface of the land rises northeastward in a succession of valleys and plains, traversed by mountains, until a more decidedly mountainous belt is reached, extending from northwest to southeast across about the middle of the Territory. Within this belt the ascent becomes more rapid and brings the general level quickly from an elevation of 2,000 or 3,000 feet to 5,000 feet or higher. From this belt northward and eastward a general elevation of from 5,000 to 7,000 feet is maintained, except where traversed by mountains, some of which are several thousand feet higher. In the southeastern part of the Territory, comprising Graham and Cochise counties, there are many high mountains, but the elevation of the valleys and plains is somewhat less than the general level of the northern portion of the Territory, and this section may be included under that division named the "southern valleys and plains." These physical features influence climatic conditions greatly and render possible a great variety of climate over the Territory, both as regards temperature and precipitation.

From the south central portion of the Territory southward and westward and along the western border the summers are long and intensely hot, while the winters are mild and delightful. In the southeast the heat of summer is not so intense and the winters are somewhat colder. Over the northern plateau temperature conditions approach those of temperate climates. In this section summers are only moderately warm, while the winters are generally quite cold. Arizona may be said to lie without the path of storms, and this fact renders abrupt and decided changes of temperature from day to day of infrequent occurrence and gives the Territory an equable climate in that respect. The difference between the highest temperature of the day and the lowest temperature of the night is, however, very great. A daily range of 40° or more is of frequent occurrence. This is due to the very dry condition of the air, which permits the sun's rays to pass freely through it and raise to a high temperature the surface of the ground and the air lying near thereto, while favoring radiation at night. In the warmest portions of the Territory the temperature reaches 100° to 110° daily for long periods during the summer months while it frequently goes much higher than 110°, but the great daily range brings down the temperature at night so that considerable relief from the trying heat of the day is afforded. When the average condition of dryness prevails those days on which the maximum temperature is in the neighborhood of 100° or less are not uncomfortably warm. When the humidity is unusually high or when cloudiness, which prevents rapid cooling at night by hindering radiation, prevails, the heat becomes very oppressive. It is during such periods that the effect of heat on man and beast is greatest, rather than during periods of clear sky with dry air and high temperature. In the southeast and over the northern plateau the temperature seldom rises above 100° for extended periods, and when cloudiness or high humidity prevails temperatures are lower, so that summer weather seldom becomes very oppressive in those sections. In the winter temperatures are frequently near the zero point, and sometimes far below over the northern plateau. In the southeast, however, extremely cold weather is of rare occurrence. In the warmest sections of the Territory temperatures sometimes go below the freezing point at night, but this is not the usual condition. There is no portion of Arizona which is absolutely free from frost, though in the extreme southwest injurious frosts are infrequent. Over the northern plateau frosts occur early in the fall and late in the spring. At Fort Defiance, in the northeast, killing frosts or freezing temperatures have occurred every month of the year except August. This is likewise true of Flagstaff. The annual range of temperature for the Territory is great, a maximum of 127° having occurred at Fort Mohave in June, 1896, and a minimum of -24° at Fort Defiance in February, 1899.

There is considerable difference in the amount of precipitation which occurs over different parts of Arizona, due mainly to difference in elevation. The region of least precipitation is the low lying plains in the southwestern portion of the Territory, comprising the greater portion of Yuma County and part of Pima and Maricopa counties, and a narrow belt in the western portion of the Territory lying along the Colorado River. Within this region the normal annual precipitation is less than 3 inches. From this section eastward the normal gradually increases until the maximum is reached within a belt extending from the north central portion of the Territory in a generally southeasterly direction into Graham and Cochise counties. Within this belt, which follows the more mountainous portion of the Territory, the normal ranges from about 12 inches to slightly more than 22 inches, which latter amount is the normal at Flagstaff. Over the northern portion of the Territory the normal is less than within the more mountainous region. The precipitation is unevenly distributed throughout the year. The period of greatest rainfall occurs in July and August, after which the normal diminishes until October, increasing again in the winter and diminishing again as spring advances to the dry season of May and June, when the least rainfall of the year occurs. At Flagstaff the greatest precipitation occurs in December and January, during which months there are heavy snows. In the winter much of the precipitation in the northern portion of the Territory is in the form of snow, and there is some snowfall in the southeast portion. From the south central portion southward and westward, however, snow is rarely seen, except on the mountains.

Violent thunderstorms occur quite frequently during the summer. They are generally accompanied by high winds and sometimes by very heavy rains or by hail. Great clouds of dust are usually carried up by the wind on the front of the storm, and unless rain occurs the dust storm continues as long as the wind blows, which may be several hours. These storms occur most frequently in the afternoon or evening. They are seldom destructive in their effect, except to such trees as are easily broken down. The sparsely settled condition of the country may, however, partly account for the absence of destructive effects. In the winter, while storms of local violence are not frequent, brisk to high winds occur frequently, especially in the more elevated portion of the Territory. As is to be expected in such a dry climate, these winds cause the air to be filled with dust.

The climate of Arizona is preeminently one of sunshine. At Phoenix the average actual sunshine throughout the year, as computed for the period during which records were made, is 84 per cent of the possible.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Apache.....	Fort Defiance.....	Northern plateau.	902	Navajo.....	Fort Apache	Northern plateau.	908
Cochise.....	Fort Huachuca.....	Southern valleys and plains.	914	Pima.....	Holbrook.....	Southern valleys and plains.	904
Coconino (see Holbrook).		Northern plateau.		Tucson.....	Tucson.....	Southern valleys and plains.	913
Gila (see Fort Apache and Dudleyville).		do.....		Pinal.....	Dudleyville Oracle.	do.....	910
Graham.....	Fort Grant.....	Southern valleys and plains.	912	Santa Cruz (see Fort Huachuca).	do.....	do.....	911
Maricopa.....	Phoenix.....	do.....	907	Yavapai.....	Prescott.....	Northern plateau.	906
Mohave.....	Fort Mohave Signal.	do.....	903	Yuma.....	Yuma.....	Southern valleys and plains.	909
		do.....	905				

TERRITORIAL SUMMARY.

Station.	No.	Temperature.									
		Mean an- nual.	Mean maxi- mum.	Mean mini- mum.	Absol- ute maxi- mum.	Date.	Absol- ute mini- mum.	Date.	Average num- ber days with—		
		° F.	° F.	° F.	° F.		Maximum above 90°.		Mini- mum below 32°.		
Fort Defiance.....	1	46			98	June, 1901.....	-24	February, 1899.....			
Fort Mohave.....	2	72			127	June, 1896.....	14	January, 1888.....			
Holbrook.....	3	54			106	July, 1899.....	-21	December, 1898.....			
Signal.....	4	68			121	June, 1902.....	10	December, 1901.....			
Prescott.....	5	52	68	38	104	July, 1900.....	-12	February, 1899.....	40	130	
Phoenix.....	6	70	84	56	116	June, 1902.....	22	December, 1900.....	149	12	
Fort Apache.....	7	54	71	38	104	do.....	-15	February, 1899.....	51	152	
Yuma.....	8	72	86	58	118	July, 1878.....	22	January, 1883.....	160	4	
Dudleyville.....	9	65			114	June, 1902.....	14	December, 1891.....			
Oracle.....	10	62			105	June, 1896.....	10	February, 1899.....			
Fort Grant.....	11	61	72	50	106	do.....	10	December, 1900.....	46	38	
Tucson.....	12	68	82	52	112	June, 1902.....	10	December, 1901.....	130	29	
Fort Huachuca.....	13	61			104	July, 1886.....	0	December, 1887.....			

Station.	No.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Fort Defiance.....	1	Sept. 23	June 2	Sept. 11	July 7	Inches. 12.8	Inches. 2.6	Inches. 4.5	Inches. 2.7	Inches. 3.0
Fort Mohave.....	2	Dec. 3	Feb. 23	Nov. 23	Mar. 24	5.4	0.8	0.7	0.9	3.0
Holbrook.....	3	Oct. 15	May 8	Sept. 17	June 13	7.9	1.3	2.6	2.2	1.8
Signal.....	4	Nov. 15	Mar. 13	Oct. 30	Apr. 8	7.1	0.9	1.9	1.3	3.0
Prescott.....	5	Oct. 20	May 20	Sept. 15	June 2	15.6	2.8	5.3	3.0	4.5
Phoenix.....	6	Dec. 3	Feb. 23	Nov. 9	Mar. 31	6.8	0.6	2.1	2.2	1.9
Fort Apache.....	7	Oct. 13	May. 10	Sept. 22	June 12	17.6	2.8	6.6	3.8	4.4
Yuma.....	8					2.7	0.4	0.4	0.6	1.3
Dudleyville.....	9	Nov. 13	Mar. 30	Oct. 16	May 3	12.0	1.6	4.0	2.9	3.5
Oracle.....	10	Dec. 4	Mar. 29	Nov. 12	do.....	15.9	2.0	5.8	3.5	4.6
Fort Grant.....	11	Nov. 26	Apr. 1	Nov. 2	June 4	13.5	1.5	5.5	3.3	3.2
Tucson.....	12	Nov. 22	Mar. 26	Oct. 16	May 3	9.8	0.9	4.5	2.1	2.3
Fort Huachuca.....	13	Nov. 28	Apr. 5	Oct. 30	do.....	16.2	1.2	8.6	3.5	2.9

ARIZONA.

Northern Plateau: APACHE COUNTY. Station: FORT DEFIANCE.

C. C. MANNING, Observer.

[Established by Weather Bureau in May, 1897. Latitude, 36° 46' N. Longitude, 109° 04' W. Elevation, 6,850 feet.]

This station is just south of the Navajo Indian Agency at Fort Defiance, Ariz., with open country surrounding. It is situated in a low canyon, or draw, with the hills to the west rising 400 to 500 feet above, and a low mesa to the east, about 100 feet above the valley.

The maximum and minimum thermometers are exposed in a slatted shelter, fastened to the north side of a store building, 14 feet above the ground. The shelter consists of a slatted box, with roof, allowing free ventilation on all sides and through the bottom.

The rain gage is about 10 feet from the ground, on a shed roof on the west side of the building to which the shelter is attached.

The temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1897, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
December.....	° F. 26	° F. 60	° F. 60	° F. -16	° F. 30	° F. 19	° F. 19	In. 0.7		In. T.	In. T.
January.....	26	57	57	-23	34	19	19	1.0		T.	0.4
February.....	29	64	64	-24	33	20	20	1.3		T.	2.5
Winter mean.....	27							3.0		T.	2.9
March.....	37	69	69	1	41	33	33	0.9		0.8	1.8
April.....	46	78	78	15	49	42	42	0.6		1.4	0.8
May.....	53	85	85	20	56	50	50	1.1		0.2	1.1
Spring mean.....	45							2.6		2.4	3.7
June.....	64	98	98	28	66	60	60	1.0		0.2	4.7
July.....	68	97	97	31	70	66	66	1.5		0.2	0.6
August.....	68	96	96	39	70	66	66	2.0		0.6	4.0
Summer mean.....	67							4.5		1.0	9.3
September.....	58	85	85	25	62	54	54	1.4		1.8	2.5
October.....	47	78	78	14	49	43	43	0.6		0.6	0.0
November.....	37	64	64	6	39	33	33	0.7		0.7	0.0
Fall mean.....	47							2.7		3.1	2.5
Annual mean.....	46	98	98	-24				12.8		6.5	18.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1897	Jan., Feb., Mar., Apr. missing; Dec. 3-6; 10, 11, 17, 20-27.	June missing.	1901	Jan. 1-3, 11, 12, 14, 17-19; Feb. 6-10, 12-15; Dec. 9, 13-17, 20-22, 25-29.	None.
1898	Jan. 9, 12-24, 26-28, 30, 31; Feb. 1-3, 11; Mar. 23; May 3; Nov. 10, 13, 15, 21-23, 28; Dec. 3, 4, 9, 10, 12-16, 18, 19, 22-27, 30, 31.	None.	1902	Jan. 6, 18, 20, 21, 27, 28, 30, 31; Feb. 1-4, 6-8; Mar. 4, 15, 16, 30; Nov. 26, 29, 30; Dec. 1-4, 15-24, 29-31.	Do.
1899	Jan. 1-3, 5-22, 24-26; Feb. 6-9, 12, 15; Dec. 4, 5, 14, 15, 21, 22.	Sept. missing.	1903	Jan. 1, 2, 12-14, 17-21; Feb. 3-11; 15-21; Mar. 1, 2, 18; Nov. 18; Dec. 4-6, 9-22, 24-31.	Do.
1900	Jan. 29; Feb. 8-10, 18; Dec. 16, 23-25, 29-31.	None.			

ARIZONA.

Southern Valleys and Plains: MOHAVE COUNTY. Station: FORT MOHAVE.

E. L. MADDREN, Observer.

[Established by Signal Service July, 1880. Latitude, 35° 05' N. Longitude, 114° 36' W. Elevation, 402 feet.]

This station is located at the Indian school, about 18 miles north of the town of Needles, Cal. It is on a mesa which forms part of the bank of the Colorado River, and is about 25 feet above the river. The surrounding country is partly desert and partly the low overflow land near the river. At a distance of 12 or 14 miles to the east and to the west are ranges of mountains.

The maximum and minimum thermometers are exposed in the regulation Weather Bureau shelter, which stands about 20 feet east of a one-story cottage, and is elevated about 5 feet above the ground.

The rain gage stands upon the ground, and is about 20 feet east of the one-story cottage. Its top is 2 feet 6 inches from the ground.

Temperature means, from 1880 to 1890, were calculated from tridaily observations; from 1891 to 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1880, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	52		81		20	56	48	1.3		T.	11.2
January.....	49		81		14	56	44	0.8		0.0	4.2
February.....	56		89		25	62	48	0.9		0.0	0.4
Winter mean.....	52							3.0		T.	15.8
March.....	63		103		31	70	57	0.5		0.2	2.5
April.....	70		110		34	77	62	0.2		0.3	0.7
May.....	79		117		38	83	75	0.1		T.	0.3
Spring mean.....	71							0.8		0.5	3.5
June.....	88		127		49	98	83	T.		0.0	T.
July.....	94		123		52	97	90	0.2		0.0	T.
August.....	91		124		37	96	85	0.5		T.	0.7
Summer mean.....	91							0.7		T.	0.7
September.....	84		116		35	89	78	T.		0.0	0.0
October.....	72		110		25	76	68	0.2		T.	0.6
November.....	60		95		24	66	53	0.7		1.7	0.8
Fall mean.....	72							0.9		1.7	1.4
Annual mean.....	72		127		14			5.4		2.2	21.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 105° or above.	Year.	Minimum below 26°.	Maximum 105° or above.
1897	Jan., Feb., Mar., Apr. missing; Dec. 20, 21.	June 2-12, 19, 20, 22, 23, 29, 30; July, Aug., Sept. missing.	1901	Jan. (1-4 missing) 10, 11; Dec. 13-15.	May 16, 18; June 16, 17, 21, 22, 24, 26-30; July missing; Aug. 1-13 (14-23 missing), 24-31; Sept. 1, 2, 8, 9, 13, 14, 16-19, 21.
1898	Jan. 22, 25, 26; Apr. missing; Dec. 12, 31.	May 11; June missing; July 1-9 missing, 10-31; Aug. 1-20, 24-26, 28; Sept. 1, 2, 7-11, 15-24.	1902	Jan. (1-16 missing) 26, 30, 31; Feb. 1, 2; Nov., Dec. missing.	May 27, 28; June 4-26, 28-30; July 6-15, 17-23 (24-31 missing); Aug. 1-9, 13, 14, 16-19, 21-28 (29-31 missing); Sept. 2-12, 14; Oct. missing.
1899	Jan. 1, 2, 5, 6.....	May 11, 12; June 8-24, 26-30; July 1-31; Aug. 3, 9, 11-13, 19-31; Sept. 1-6, 8-14, 17-29.	1903	Jan., Feb., Mar. missing.	May, June, missing; July 1, 2, 4-14, 17-19, 21, 22, 24-31; Aug. 1-25, 29-31; Sept. 1-5, 10.
1900	Dec. 31.....	May 9, 16, 26-31; June 6, 7, 17-30; July missing; Aug. 1-3, 5-7, 12-15 (19-27 missing), 29, 31; Sept. 6.			

ARIZONA.

Northern Plateau: NAVAJO COUNTY. Station: HOLBROOK.

THORWALD LARSON, Observer.

[Established January, 1888. Latitude, 34° 54' N. Longitude, 110° 9' W. Elevation, 5,050 feet.]

This station is near the central part of the town of Holbrook, a little north of the middle of the old river bed of the Little Colorado River. To the south the banks rise gradually, commencing 1 mile away, and reaching an elevation above the town of 300 feet at a distance of 2 miles. Three-quarters of a mile north of the station the banks rise abruptly to a height of 200 feet. The present river bed lies one-quarter of a mile south, extending a little to the north of west.

The maximum and minimum thermometers are exposed in a standard shelter facing the east and 40 feet from the house. The instruments are elevated above the sod 5 feet.

The rain gage, 120 feet south of the shelter, is 35 feet from the observer's house (which is one story and an attic), and about 75 feet from a large cottonwood tree. The top of the gage is 3 feet above the ground.

Temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO JUNE 30, 1900.

Month.	Temperature.							Precipitation.		
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.
December.....	34		70		-21	45	19	0.6		0.3
January.....	32		66		-7	38	22	0.7		0.4
February.....	38		74		-6	41	34	0.5		0.2
Winter mean.....	35							1.8		0.9
March.....	45		84		-4	49	41	0.6		T.
April.....	54		89		13	60	50	0.4		0.0
May.....	62		97		21	65	57	0.3		0.1
Spring mean.....	54							1.3		0.1
June.....	69		103		29	73	65	0.1		0.3
July.....	75		106		44	79	72	1.3		1.2
August.....	75		103		45	79	75	1.2		1.0
Summer mean.....	73							2.6		2.5
September.....	68		100		27	73	65	0.9		T.
October.....	55		89		20	61	52	0.6		0.6
November.....	43		78		-8	47	36	0.7		0.4
Fall mean.....	55							2.2		1.0
Annual mean.....	54		106		-21			7.9		4.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1897	Jan., Feb., Mar., and Apr. missing; Dec. 20, 22-27.	None.	1900	Feb. 8-10; July-Dec. missing.	June 19-21, 26-30; July-Dec. missing.
1898	Jan. 1, 2, 12-22, 25-27, 29; Mar. 14; Nov. 13; Dec. 3, 4, 12-20, 22-28, 30, 31.	June 18, 28, 29; July 22-30; Aug. 12-15.	1901	No data.....	No data.
1899	Jan. 1, 2, 5-7, 9, 10, 13, 14, 16, 18, 20, 22-29; Feb. 6-8; Dec. 14.	June 11, 17, 18, 28-30; July missing; Sept. 3.	1902	do.....	Do.
			1903	Jan., Feb., and Mar. missing; Dec. 4-6, 9, 14-17, 20, 25-31.	May, June, July, and Aug. missing.

ARIZONA.

Southern Valleys and Plains: MOHAVE COUNTY. Station: SIGNAL.

GABRIEL LEVY, Observer.

[Established by Signal Service, 1887. Latitude, 34° 24' N. Longitude, 113° 30' W. Elevation, 1,652 feet.]

This station is near the southern part of the village of Signal, and its surroundings are mountainous. It is situated in a basin rather than in level country. The station is about one-fourth of a mile from the Big Sandy River and about one-half mile from the hills on the east and south. The elevation of the hills in this vicinity on either the eastern or the southern side of the basin probably does not exceed 700 to 1,000 feet.

The maximum and minimum thermometers are exposed in a standard shelter, 25 feet east of a store building. The door opens toward the west. The height of the thermometers above the sod is 5 feet 2 inches.

The rain gage is 5 feet north of the shelter and 20 feet from the store. The top of the gage is about 2½ feet above the ground and is not surrounded by any trees.

Temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1889, TO OCTOBER 30, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxi- ma.	Absol- ute maxim- um.	Mean of the mini- ma.	Absol- ute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	49		84		10	53	44	1.0		0.0	0.9
January.....	49		88		19	54	44	1.0		0.3	0.2
February.....	52		91		15	56	45	1.0		0.0	T.
Winter mean.....	50							3.0		0.3	1.1
March.....	58		90		25	64	52	0.5		0.3	2.3
April.....	65		102		34	71	62	0.2		1.2	0.0
May.....	73		112		36	77	69	0.2		0.2	0.6
Spring mean.....	65							0.9		1.7	2.9
June.....	83		121		47	88	78	0.1		T.	T.
July.....	90		120		52	93	87	0.5		0.7	0.8
August.....	89		118		50	92	82	1.3		T.	1.9
Summer mean.....	87							1.9		0.7	2.7
September.....	80		115		40	85	73	0.4		T.	1.2
October.....	68		101		34	71	65	0.5		0.1	0.1
November.....	57		94		26	61	54	0.4		0.3	1.5
Fall mean.....	68							1.3		0.4	2.8
Annual mean.....	68		121		10			7.1		3.1	9.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO OCTOBER 30, 1903.

Year.	Minimum below 26°.	Maximum 105° or above.	Year.	Minimum below 26°.	Maximum 105° or above.
1897	Jan., Feb., Mar., and Apr. missing; Dec. 5, 6, 20-22, 25.	May 29; June 5-7, 21; July 1, 7, 10-22, 25-31; Aug. 5-8, 10, 13-19, 22.	1902	Jan. 5, 7-10, 20-24, 27, 30, 31; Feb. 1, 2, 4-7, 13; Mar. 15; Dec. missing.	May 28; June 5-26, 29; July 8-24, 26-31; Aug. 1-8, 10, 11, 15, 16, 18-23, 30, 31; Sept. 1-3, 5-7, 9-12.
1898	Jan. 14, 22, 25; Dec. 8, 12, 24, 30, 31.	June 17-20, 25-29; July 6, 8, 10, 12-17, 21-31; Aug. 1, 2, 8-18, 20; Sept. 10.	1903	Jan. 9, 10, 20, 31; Feb. 3, 4, 6-11, 16-18, 20, 25; Mar. 2, 22; Nov. and Dec. missing.	May 12, 13, 29-31; June 4-9, 17-21, 23-30; July 1-14, 17-19, 21, 22, 24-31; Aug. 1-8, 11-24, 27, 29-31; Sept. 1-4, 10.
1899	Jan. 1-7; Feb. 4, 6-8; Mar. 11; Dec. 9, 14, 15, 27.	June missing; July 1-8, 11-19, 21-31; Aug. 9-15, 20-31; Sept. 1-5, 10-13, 17-29.			
1900	Jan. 28; Feb. 3, 9; Dec. 13, 14, 16-18, 23-25, 27, 29-31.	May 9, 25-27, 30, 31; June 5-7, 12, 16-30; July 4-19, 22-31; Aug. 1, 2, 6, 7, 12-16, 22-29; Sept. 6, 8.			
1901	Jan. 1-4, 9-15, 31; Mar. missing; Dec. 9, 10, 12, 14-19, 22-24, 26-29.	June 16-18, 21-23, 26-30; July 1-29, 31; Aug. 1, 2, 5-16, 20-31; Sept. 1, 8, 14-19.			

ARIZONA.

Northern Plateau: YAVAPAI COUNTY. Station: PRESCOTT.

WARREN E. DAY, M. D., Observer.

[Established at Fort Whipple, a U. S. army post near the city, in 1886; transferred to Prescott, under charge of the present observer, in 1897.
Latitude, 30° 25' N. Longitude, 112° 21' W. Elevation, 5,260 feet.]

This station is near the center of the city of Prescott, and its surroundings are open enough for all purposes. The station is in a natural basin in the course of Granite Creek, with elevated hills both to the east and the west.

The maximum and minimum thermometers are exposed in a standard shelter located in the residence inclosure of the observer, about 30 feet from any obstruction. The thermometer supports are set in the shelter 4½ feet above the ground.

The rain gage is 8 feet north of the instrument shelter, and is free from any obstruction; the top of the gage is 5 feet 8 inches above the ground.

Tabulated data are for the following periods of observation: Rainfall, 1876 to 1890; mean maximum and mean minimum temperatures, 1877 to 1890; the remaining data, from July 1, 1880, to December 31, 1903.

Temperature means from 1880 to 1887 from tridaily observations; during 1888 from twice daily observations; from 1889 to 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Relative mean humidity, 8 a. m.	Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.		
December	37	51	74	25	- 8	42	31	1.5	6	0.3	5.6	2.3	54	SW.
January	35	47	70	20	- 8	42	28	1.5	4	0.1	0.2	5.2	60	SW.
February	38	52	70	25	-12	43	29	1.5	5	0.5	6.6	5.7	59	SW.
Winter mean	37	50		23				4.5	15	0.9	12.4	13.2	58	SW.
March	43	59	80	30	- 9	50	37	1.6	5	1.5	5.5	6.5	54	S.
April	50	66	87	36	11	57	45	0.7	4	0.6	1.6	0.4	49	S.
May	58	75	95	42	5	69	48	0.5	2	0.4	1.4	0.5	38	S.
Spring mean	50	67		36				2.8	11	2.5	8.5	7.4	47	S.
June	66	85	104	48	25	71	62	0.3	1	0.1	0.3	0.0	43	SW.
July	72	89	104	59	37	77	67	2.1	10	2.5	1.3	0.0	48	SW.
August	70	85	101	58	40	73	67	2.9	12	1.2	1.6	0.0	55	SW.
Summer mean	69	86		55				5.3	23	3.8	3.2	0.0	49	SW.
September	64	81	97	49	26	69	60	1.1	4	0.1	1.0	0.0	47	S.
October	53	70	87	38	15	58	49	0.8	4	0.4	1.4	0.0	47	SW.
November	43	58	80	27	8	50	36	1.1	3	2.5	0.2	1.8	55	SW.
Fall mean	53	70		38				3.0	11	3.0	2.6	1.8	50	SW.
Annual mean	52	68	104	38	-12			15.6	60	10.2	26.7	22.4	51	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1897	Dec. 4, 5, 17, 20-25.	None.	1901	Jan. 1-3, 11; Feb. 8, 13.	June 23, 29; July 6, 18, 19.
1898	Jan. 8, 12-15, 18, 19, 21, 22, 24-27; Dec. 11-13, 24, 30, 31.	July 27, 28, 30.	1902	Jan. 27-31; Feb. 1, 2; Mar. 26; Nov. 23, 24, 26; Dec. 2, 14, 28.	None.
1899	Jan. 9, 12-17; Feb. 6, 7; May 3; Dec. 14.	None.	1903	Jan. 11; Feb. 2-10, 15, 16; Dec. 4, 5, 15-19, 23-30.	Do.
1900	Dec. 29, 31.	June 27-29; July 9-12.			

ARIZONA.

Southern Valleys and Plains: MARICOPA COUNTY. Station: PHOENIX.

M. F. BLYSTONE, Section Director.

[Established by Weather Bureau August 6, 1895. Latitude, 33° 28' N. Longitude, 112° 00' W. Elevation, 1,067 feet.]

This station is within the business portion of the city of Phoenix, and near the northwest limits. Phoenix is located in the midst of a broad and level valley, which is traversed from east to west by the Salt River. The bed of the Salt River at this point is dry, except in time of flood. A range of mountains extends eastward and westward about 10 miles south and these attain an elevation of about 800 to 1,000 feet. Mountains of about the same height, though more broken, lie about the same distance northeast and north.

The thermometers and the thermograph are exposed in a standard shelter on the roof of the building in which the Weather Bureau office is located. The floor of the shelter is about 10 feet above the roof. The door of the shelter opens toward the south; the thermometers are 47 feet above the ground.

The rain gage is exposed on the roof of the building in which the office is located, about 40 feet east of the instrument shelter. The top of the gage is 26 inches above the roof and 40 feet above the ground. The anemometer cups are 56 feet above ground.

Data are from eight years' record, January 1, 1896, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.	Relative, s. a. m.	Absolute, s. a. m.	Relative, s. p. m.	Absolute, s. p. m.	Average hours.	Percentage of possible.	
December.....	52	66	80	38	22	54	49	0.8	2	0.3	2.7	0.6	57	1.68	32	1.90	255	85	E.
January.....	52	65	81	39	23	56	47	0.7	4	0.0	0.2	0.0	64	1.96	37	2.20	228	72	E.
February.....	56	68	85	41	24	59	49	0.7	3	0.5	2.5	0.0	62	2.12	28	1.90	245	79	E.
Winter mean....	53	66	80	39	23	56	49	2.2	9	0.8	5.4	0.6	61	1.92	32	2.00	243	79	E.
March.....	60	73	94	46	31	66	54	0.6	3	0.3	2.1	0.0	53	2.01	24	1.98	296	80	E.
April.....	67	82	102	52	38	72	63	0.3	1	0.0	0.4	0.0	45	2.11	18	1.91	334	85	E.
May.....	75	90	106	60	39	78	71	0.1	1	0.6	T.	0.0	38	2.26	15	2.09	385	89	E.
Spring mean....	67	82	98	53	39	74	67	1.0	5	0.9	2.5	0.0	45	2.13	19	1.99	338	85	E.
June.....	85	101	116	69	52	88	83	0.1	1	T.	0.2	0.0	32	2.55	12	2.18	402	94	E.
July.....	90	104	112	77	65	93	88	0.9	5	0.2	0.1	0.0	49	5.19	21	4.27	365	83	W.
August.....	89	102	113	76	64	91	86	0.9	6	0.7	1.8	0.0	54	5.38	25	4.80	341	82	E.
Summer mean....	88	102	112	74	63	91	86	1.9	12	0.9	2.1	0.0	45	4.37	19	3.75	369	86	E.
September.....	83	97	112	69	50	86	79	0.7	4	0.1	1.5	0.0	51	4.07	25	4.04	324	87	E.
October.....	71	86	100	56	36	74	68	0.4	2	0.1	1.1	0.0	51	2.83	26	2.84	304	77	E.
November.....	61	75	90	46	30	64	57	0.6	2	0.9	0.2	0.0	57	2.17	32	2.47	263	84	E.
Fall mean.....	72	86	98	57	38	74	68	1.7	8	1.1	2.8	0.0	53	3.02	28	3.12	297	86	E.
Annual mean....	70	84	116	56	22	74	68	6.8	34	3.7	12.8	0.6	51	2.86	25	2.72	312	84	E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD AUGUST 6, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 105° or above.	Year.	Minimum below 26°.	Maximum 105° or above.
1895	Dec. 19, 26, 27, 30, 31.	Aug. 6, 13, 16-18; Sept. 1, 12-16.	1900	Dec. 31	June 18-30; July 6-18, 23, 25, 26, 28-31; Aug. 1, 2, 25, 28.
1896	None	May 25-28; June 9-23, 28-30; July 3, 5-9, 11, 12; Aug. 2, 9, 10, 12-14, 18.	1901	Jan. 2, 11, 12; Dec. 13-15.	June 17, 22, 23, 27-30; July 2-20, 22, 25, 31; Aug. 1, 2, 7-9, 15, 16, 22-26; Sept. 1, 18, 19.
1897	do.	June 7, 21; July 10, 13-17, 20, 25-30; Aug. 5-7, 15-19, 22.	1902	None	June 9, 10, 20-26; July 10-15, 19, 20, 22, 30, 31; Aug. 1, 2, 4-8, 16; Sept. 3, 6, 7, 10.
1898	Jan. 21, 25, 26.	June 17-19, 24-29; July 8, 12-14, 23-31; Aug. 1, 9-20; Sept. 6, 10, 18.	1903	do.	May 30; June 25-30; July 1, 5-13, 18, 19, 25-31; Aug. 1-5, 16-22, 30, 31; Sept. 1-4.
1899	Feb. 7.	June 10, 11, 16, 17, 21, 23, 28-30; July 1-9, 12-14, 16, 23, 24, 26, 28, 29; Aug. 14, 30, 31; Sept. 1, 2, 12, 13, 24-26.			

ARIZONA.

Northern Plateau: NAVAJO COUNTY. Station: FORT APACHE.

POST SURGEON, U. S. ARMY, Observer.

[Established by Signal Service October 9, 1877. Latitude 33° 46' N. Longitude 109° 50' W. Elevation, 5,800 feet.]

This station is situated in a valley near the junction of the two forks of the White River.

The maximum and minimum thermometers are exposed in the regulation Weather Bureau instrument shelter, situated about 50 feet in front of the post hospital. The shelter is elevated about 5 feet above the ground.

The rain gage is situated about 50 feet in front of the post hospital and about 30 feet from the instrument shelter. The top of the gage is about 2 feet above the ground.

The rainfall data tabulated are for a period of observation July 1, 1878, to December 31, 1903. The remainder of the data is from July 1, 1880, to December 31, 1903.

Temperature means from 1880 to 1889 were calculated from tridaily observations; from 1890 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity, relative, 8 a. m.	Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	Per ct.	
December.....	38	54	80	25	-14	45	28	1.4	6	0.7	5.5	2.6	62	NE.
January.....	35	50	75	20	-12	41	28	1.3	6	0.2	0.7	2.6	63	NE.
February.....	39	55	80	25	-15	46	34	↓ 7	7	0.3	3.4	1.2	60	NE.
Winter mean.....	37	53		23				4.4	19	1.2	9.6	6.4	62	NE
March.....	45	62	86	30	4	52	40	1.4	7	0.9	4.4	1.4	56	NE.
April.....	52	71	92	34	10	57	48	0.6	5	0.3	1.7	0.2	46	SW.
May.....	60	80	97	40	23	68	56	0.8	3	0.0	1.3	0.0	38	E.
Spring mean.....	52	71		35				2.8	15	1.2	7.4	1.6	47	E.
June.....	69	89	104	48	29	76	64	0.7	4	0.5	2.4	0.0	36	E.
July.....	74	91	102	58	40	79	70	2.6	14	0.3	0.1	0.0	55	E.
August.....	71	87	100	57	40	75	68	3.3	15	4.4	5.6	0.0	64	E.
Summer mean.....	71	89		54				6.6	33	5.2	8.1	0.0	52	E.
September.....	65	83	96	49	26	70	61	1.6	6	1.3	1.5	0.0	55	E.
October.....	55	73	88	38	20	59	51	1.2	4	2.4	2.0	0.0	52	E.
November.....	46	61	80	26	12	60	37	1.0	4	0.8	0.8	0.5	56	NE.
Fall mean.....	55	72		38				3.8	14	4.5	4.3	0.5	54	E.
Annual mean.....	54	71	104	38	-15			17.6	81	12.1	29.4	8.5	54	E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 100° or above.	Year.	Minimum below 10°.	Maximum 100° or above.
1897	Jan. 7; Dec. 22.....	None.	1900	None.....	June 27, 28; July 11, 12, 18.
1898	Jan. 12, 15-17, 19-24, 25-27; Dec. 12-14, 24-26, 31.	July 28, 29.	1901	Jan. 1, 2; Dec. 12, 13, 27, 29.	June 30; July 5, 12, 17, 18.
1899	Jan. 1, 6, 9, 10, 15, 16; Feb. 7-9; Dec. 15.	None.	1902	Dec. 23.....	June 11, 16, 17, 23, 24; July 31; Aug. 2.
			1903	Feb. 3, 4, 15, 16, 18; Dec. 15, 24, 28-31.	June 26, 27.

ARIZONA.

Southern Valleys and Plains: YUMA COUNTY. Station: YUMA.

SUMNER HACKETT, In Charge.

[Established by Signal Service October 4, 1875. Latitude 32° 45' N. Longitude 114° 30' W. Elevation, 137 feet.]

Yuma is situated on the Colorado River, 175 miles from its mouth, and at the junction of the Rio Gila with the Colorado. The surrounding country is a level sandy plain, there being no hills or considerable elevations near the station.

The Weather Bureau office is located in the quartermaster's building. The thermometers are exposed over sod in a standard instrument shelter. From October 4, 1875, to July 7, 1885, the thermometers were 5 feet above ground. On the latter date they were raised to 16 feet. The top of the rain gage is 2 feet above ground and the anemometer cups 50 feet.

The period of observation is twenty-eight years, October 4, 1875, to December 31, 1903. Tabulated data are for that period except humidity which is for fifteen years only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
December.....	56	68	83	44	24	60	53	0.4	2	T.	0.0	54	2.05	48	3.15	N.
January.....	54	66	81	42	22	60	50	0.4	2	T.	1.1	55	1.95	45	2.75	N.
February.....	59	72	91	46	25	65	52	0.5	2	T.	0.1	57	2.31	41	3.06	N.
Winter mean.....	56	69	.....	44	.....	.....	.....	1.3	6	T.	1.2	55	2.10	45	2.99	N.
March.....	64	78	100	50	31	72	58	0.3	1	T.	0.3	58	2.53	34	3.08	W.
April.....	70	85	107	55	38	75	65	0.1	0	0.0	0.3	53	2.74	25	2.90	W.
May.....	77	93	112	61	44	82	72	T.	0	0.0	0.0	55	3.49	26	3.74	W.
Spring mean.....	70	85	.....	55	.....	.....	.....	0.4	1	T.	0.6	55	2.93	28	3.27	W.
June.....	85	101	117	68	52	89	79	T.	0	T.	0.0	55	4.39	24	4.23	SW.
July.....	92	106	118	77	61	94	89	0.1	1	T.	T.	61	6.26	35	7.32	S.
August.....	91	104	115	77	60	93	87	0.3	2	0.1	2.2	65	6.67	40	7.91	S.
Summer mean.....	89	104	.....	74	.....	.....	.....	0.4	3	0.1	2.2	60	5.77	33	6.49	S.
September.....	84	100	113	70	50	89	79	0.1	1	0.0	0.0	62	5.27	36	6.16	NE.
October.....	73	87	108	58	41	77	67	0.2	1	0.0	1.1	59	3.50	39	3.73	NE.
November.....	62	76	92	49	31	68	57	0.3	1	0.5	0.2	53	2.39	42	3.46	N.
Fall mean.....	73	88	.....	59	.....	.....	.....	0.6	3	0.5	1.3	58	3.72	39	4.45	NE.
Annual mean.....	72	86	118	58	22	.....	.....	2.7	13	0.6	5.3	57	3.63	36	4.29	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 112° or above.	Year.	Minimum below 32°.	Maximum 112° or above.
1894	Jan. 4, 7, 8, 20; Feb. 2, 3, 7, 12, 24.	July 25.	1899	Jan. 2, 6; Feb. 6, 7....	June 17; Sept. 2.
1895	Dec. 19, 24, 26, 28, 30, 31.	July 16; Aug. 4, 5.	1900	Dec. 30.....	July 11.
1896	Jan. 6.....	May 27; June 10-13, 15-17; Aug. 13.	1901	Jan. 3, 4, 11; Feb. 2; Dec. 14, 16.	June 28; July 9.
1897	Dec. 16-18, 24.....	July 10; Aug. 17.	1902	Jan. 28, 31; Feb. 1....	June 22, 24.
1898	Jan. 11, 14, 17, 22, 25; Dec. 11.	June 26; July 13, 24; Aug. 14, 18.	1903	Feb. 3, 4, 7.....	June 28; Aug. 16; Sept. 3.

ARIZONA.

Southern Valleys and Plains: PINAL COUNTY. Station: DUDLEYVILLE.

GEORGE F. COOK, Observer.

[Established by Signal Service 1890. Latitude, 32° 40' N. Longitude, 110° 45' W. Elevation, 2,204 feet.]

This station is situated about 8 miles south of the village of Dudleyville, on the east side of the San Pedro River. The mountains to the east are about 5 miles distant, with a high mesa between the station and the mountains. This mesa is about 300 yards distant from the instruments. To the west and southwest the mountains are quite close to the river, the valley being somewhat less than a mile wide at this point.

The maximum and minimum thermometers are exposed in the regulation Weather Bureau shelter, which is elevated about 4½ feet above the bare ground, and stands about 40 feet south of a building and about 15 feet east of a young cottonwood tree.

The rain gage is exposed about 200 feet south of a building on open ground. The top of the gage is about 2 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	47	.....	80	.....	14	50	43	1.1	.....	0.6	0.7
January.....	47	.....	79	.....	15	51	42	1.3	.....	0.6	1.6
February.....	50	.....	84	.....	18	54	46	1.1	.....	0.4	T.
Winter mean.....	48	.....	.....	.....	.....	.....	.....	3.5	.....	1.6	2.3
March.....	55	.....	95	.....	21	61	52	0.9	.....	1.9	0.1
April.....	63	.....	98	.....	23	67	59	0.3	.....	0.0	T.
May.....	71	.....	106	.....	30	73	67	0.4	.....	1.4	0.1
Spring mean.....	63	.....	.....	.....	.....	.....	.....	1.6	.....	3.3	0.2
June.....	79	.....	114	.....	41	83	75	0.3	.....	T.	0.1
July.....	85	.....	110	.....	52	88	82	1.5	.....	0.7	1.0
August.....	83	.....	110	.....	51	85	80	2.2	.....	1.4	3.8
Summer mean.....	82	.....	.....	.....	.....	.....	.....	4.0	.....	2.1	4.9
September.....	77	.....	109	.....	38	81	74	1.3	.....	0.3	3.0
October.....	66	.....	100	.....	27	71	64	0.9	.....	T.	1.6
November.....	56	.....	89	.....	24	62	50	0.7	.....	1.1	3.9
Fall mean.....	66	.....	.....	.....	.....	.....	.....	2.9	.....	1.4	8.5
Annual mean.....	65	.....	114	.....	14	.....	.....	12.0	.....	8.4	15.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 105° or above.	Year.	Minimum below 26°.	Maximum 105° or above.
1897	Jan., Feb., Mar. missing; Nov. 9; Dec. 3-5, 8, 11, 14, 17, 18, 20, 22, 23, 25-27.	June missing; Aug. 6.	1901	Jan. 1-4, 11, 12, 17, 18; Dec. 8-10, 13-23, 27-29.	June 17, 23, 27-30; July missing; Aug. 24-26.
1898	Jan. 22-24; Mar. 15, 24, 29; Nov. 22-24; Dec. 4, 12-14, 23-25, 30, 31.	June 18, 27-29.	1902	Jan. 6, 8, 18, 20, 22, 24; Feb. 1-3, 6; Mar. 4, 5; Nov. 28, 29; Dec. 3-5, 20, 30.	June 9, 10, 21-26; July 9-15, 19, 30, 31; Aug. 1.
1899	Jan. 1-3, 5-7, 9, 10; Feb. 7, 8; Mar. 11; Dec. 10, 11, 13, 14, 20-24, 26, 27.	June 28, 30; July missing; Sept. 3.	1903	Jan. 2, 4, 6, 8-10, 12, 18-21; Feb. 4, 7, 8, 10, 16, 17, 28; Mar. 19; Nov. 19; Dec. 23-26, 28-31.	June 21, 25-30; July 1, 5, 8, 9, 11, 12, 19, 25, 27-31; Aug. 1, 2, 4, 6, 19-22.
1900	Jan. 19; Nov. 27; Dec. 13, 16, 17, 24, 26-31.	June 19-21, 24-30; July 6-15, 23, 25, 28, 30; Aug. 13, 27.			

ARIZONA.

Southern Valleys and Plains: PINAL COUNTY. Station: ORACLE.

W. H. WINTERS, Observer.

[Established by the Weather Bureau July, 1891. Latitude, 32° 40' N. Longitude, 110° 55' W. Elevation, 4,510 feet.]

This station is in the foothills on the northern slope of the Santa Catalina Mountains. To the south the open mesa extends for 10 miles, while to the north the hills rise from the very rear of the station.

The maximum and minimum thermometers are exposed in the standard shelter, which is attached to the north side of the house, on a broad veranda extending the full width of the house and partially screened by climbing roses. The thermometers are 5 feet above the porch and 12 feet from the ground.

The rain gage is 20 feet west of a one-story cottage. The top of the gage is 2½ feet above the ground.

Temperature means were obtained from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	46		70		16	49	40	1.2		3.2	3.1
January.....	45		70		11	50	38	1.9		1.4	3.7
February.....	47		81		10	52	42	1.5		0.6	0.0
Winter mean.....	46							4.6		5.2	6.8
March.....	52		85		24	57	49	1.3		1.2	1.4
April.....	60		90		30	63	53	0.4		T.	1.4
May.....	68		102		32	72	64	0.3		0.9	0.4
Spring mean.....	60							2.0		2.1	3.2
June.....	78		105		40	82	74	0.4		0.0	0.7
July.....	80		102		57	85	78	2.3		0.7	3.7
August.....	78		103		55	80	75	3.1		2.1	5.0
Summer mean.....	79							5.8		2.8	9.4
September.....	74		97		48	77	71	1.6		1.0	0.2
October.....	64		88		35	68	60	1.0		0.1	0.0
November.....	55		81		26	60	50	0.9		2.9	1.2
Fall mean.....	64							3.5		4.0	1.4
Annual mean.....	62		105		10			15.9		14.1	20.8

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 100° or above.	Year.	Minimum below 26°.	Maximum 100° or above.
1897	January, February, March, April, and December missing.		1900	Feb. 8, 9; Dec. 31	
1898	Jan. 10-19, 21-26; Nov. 20; Dec. 9-14, 22-25, 31.		1901	Jan. 1, 2, 11; Feb. 9; Dec. 12-14, 28, 29.	
1899	Jan. 6, 9, 13, 15, 23, 24; Feb. 6-8; Dec. 10.		1902	Jan. 28, 31; Feb. 1, 2; Mar. 25.	
			1903	Feb. 3, 4, 7-9, 15.	

ARIZONA.

Southern Valleys and Plains: GRAHAM COUNTY. Station: FORT GRANT.

POST SURGEON, U. S. ARMY, Observer.

[Established by Signal Service, November 1, 1875. Latitude, 32° 19' N. Longitude, 109° 37' W. Elevation, 4,916 feet.]

This station is in the southeastern part of Graham County. It is situated upon a moraine which is about 4 miles in width and has a slope of about 1 foot in 20. Northeast of the station is Graham Peak, which rises to an elevation of 10,375 feet above sea level.

The maximum and minimum thermometers are exposed in a slat-sided shelter, about 2 feet 6 inches square, and painted white. The shelter is about 50 feet from the hospital building, under a large cottonwood tree, and is about 4 feet 6 inches above the ground.

The rain and snow gage is exposed on a fence about 6 feet above the ground, and at a sufficient distance from trees and buildings to give a good exposure.

Tabulated data are for the following periods of observation: Precipitation, 1876 to 1895; mean maximum and mean minimum temperatures, 1878 to 1895; dates of extremes of temperature, 1878 to 1890 and 1897 to 1903. The remaining data are for the period July 1, 1880, to December 31, 1903. The observations from 1875 to July, 1891, were made by Signal-Service observers.

The temperature means from 1880 to 1888 were obtained from tridaily observations; from 1900 to 1903 from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Relative mean humidity, 8 a.m.	Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth of snow.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	46	57	88	36	10	52	39	1.1	5	0.2	5.9	0.2	49	N.
January.....	45	54	80	33	12	53	40	1.0	5	1.0	1.1	2.8	50	N.
February.....	47	57	87	37	13	52	43	1.1	6	1.6	4.6	0.9	47	N.
Winter mean.....	46	56		35				3.2	16	2.8	11.6	3.9	49	N.
March.....	52	63	86	42	10	58	48	0.9	6	1.7	3.9	0.1	41	N.
April.....	59	71	88	47	27	63	53	0.3	2	0.6	0.5	0.0	32	N.
May.....	67	80	100	55	24	71	60	0.3	2	0.4	0.8	0.0	26	NW.
Spring mean.....	59	71		48				1.5	10	2.7	5.2	0.1	33	N.
June.....	76	88	106	64	31	82	68	0.4	4	0.0	1.2	0.0	26	N.
July.....	78	90	104	68	48	82	72	2.4	13	0.9	0.7	0.0	43	NW.
August.....	76	87	105	65	52	80	72	2.7	12	1.0	2.4	0.0	52	E.
Summer mean.....	77	88		66				5.5	29	1.9	4.3	0.0	40	N.
September.....	72	82	99	61	40	77	67	1.8	6	0.1	1.0	0.0	42	N.
October.....	63	74	96	52	33	67	58	0.9	3	0.5	3.1	0.0	39	N.
November.....	54	62	92	40	22	63	46	0.6	3	0.1	0.5	0.1	44	N.
Fall mean.....	63	73		51				3.3	12	0.7	4.6	0.1	42	N.
Annual mean.....	61	72	106	50	10			13.5	67	8.1	25.7	4.1	41	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 100° or above.	Year.	Minimum below 26°.	Maximum 100° or above.
1897	Dec. 4, 20-26.....	None.	1901	Jan. 4, 10, 11, 13; Feb. 1, 3, 4; Dec. 8, 12-16, 21, 22, 28-31.	July 5.
1898	Jan. 11-19, 21-26; Dec. 9-13, 24, 25, 31.	Do.	1902	Jan. 30, 31; Feb. 1, 2, 26; Mar. 1, 24; Dec. 3, 14-16, 20, 21.	June 11, 20, 21, 23-30; July 31; Aug. 1-5.
1899	Jan. 1, 6, 13, 24; Feb. 6-8, 12, 13; Mar. 11-14, 18, 31; Dec. 10, 20, 21.	Do.	1903	Jan. 3; Feb. 4, 8; Dec. 24, 25.	July 12, 30; Aug. 3, 16, 21.
1900	Feb. 8; Dec. 29-31.....	June 28, 29.			

ARIZONA.

Southern Valleys and Plains: PIMA COUNTY. Station: TUCSON.

UNIVERSITY OF ARIZONA, Observer.

[Established by the Signal Service in 1878; reestablished by the Weather Bureau in 1901, and changed to voluntary station in 1905. Latitude, 32° 14' N. Longitude, 110° 53' W. Elevation, 2,430 feet.]

This station is situated on the grounds of the University of Arizona, on the outskirts of the city of Tucson. The surroundings are typical mesa country in the Santa Cruz Valley, with encircling mountains at a distance of from 3 to 30 miles. The highest elevations are nearly 10,000 feet, and for some weeks or months during the year, according to season, these mountains are snow clad.

The thermometers—maximum and minimum—are exposed in a standard shelter, located in a fenced inclosure, about 40 yards south of the main university building. There are no trees or other vegetation near enough to affect the observations. The thermometers are 6 feet above the ground.

The rain gage is exposed within the same inclosure, its top being about 2 feet above the ground.

Temperature means from 1880 to 1883 were calculated from tridaily observations; from 1884 to 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JULY 1, 1880, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	52	64	90	36	10	62	46	0.8	3	1.0	T.
January.....	50	63	80	35	17	63	41	0.7	4	0.0	1.8
February.....	54	67	82	40	11	70	45	0.8	4	0.4	1.2
Winter mean.....	52	65		37				2.3	11	1.4	3.0
March.....	59	74	95	43	22	70	51	0.6	5	0.4	0.5
April.....	66	81	98	48	28	75	59	0.2	1	T.	T.
May.....	74	91	106	55	32	81	68	0.1	1	T.	0.0
Spring mean.....	66	82		49				0.9	7	0.4	0.5
June.....	82	100	112	63	40	93	74	0.2	1	0.1	0.8
July.....	88	99	109	74	59	98	74	1.8	10	1.0	2.6
August.....	86	95	110	73	57	95	81	2.5	9	1.8	6.3
Summer mean.....	85	98		70				4.5	20	2.9	9.7
September.....	81	92	107	66	49	89	77	0.8	4	0.1	0.3
October.....	70	83	98	52	29	76	65	0.6	2	0.0	0.0
November.....	59	72	90	42	21	65	54	0.7	1	0.4	1.1
Fall mean.....	70	82		52				2.1	7	0.5	1.4
Annual mean.....	68	82	112	52	10			9.8	45	5.2	14.6

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 105° or above.	Year.	Minimum below 26°.	Maximum 105° or above.
1897	Dec. 3, 20-26.....	June 21.	1900	Feb. 9.....	June 19, 20, 23, 24, 26-28; July 6, 7, 10-14, 31; Aug. 28.
1898	Jan. 16, 18, 20-23, 25, 26, 31; Mar. 23; Nov. 12, 13, 21-23; Dec. 23, 25, 31.	June 18, 27-29; July 13, 23, 24, 26, 28; Aug. 14, 18.	1901	Jan. 1-3, 11, 12; Mar. 26; Dec. 14.	Aug. 25, 26.
1899	Jan. 5-7, 9, 24, 25; Feb. 6-8; Mar. 11, 12; Dec. 10, 11, 14, 22.	June 10, 28, 30; July 1, 2; Sept. 1, 2.	1902	None.....	June 9, 20-25; July 31; Aug. 1.
			1903	Feb. 4, 7, 8, 10, 16, 17; Dec. 24, 25.	June 25-31; July 1, 5, 30; Aug. 2, 3, 20, 21.

ARIZONA.

Southern Valleys and Plains: COCHISE COUNTY. Station: FORT HUACHUCA.

POST SURGEON, U. S. ARMY, Observer.

[Established 1878 as part of the current work of the Medical Department, U. S. Army. Latitude, 31° 30' N. Longitude, 32° 20' W. Elevation, 5,008 feet.]

The station is situated near the northeastern base of the Huachuca Mountains.

The maximum and minimum thermometers are exposed in a standard shelter, 4½ feet above the ground and 50 feet distant from the post hospital building.

The rain gage is 20 feet distant from the instrument shelter and about 70 feet from the house. The top of the gage is 4 feet above the ground.

Observations are taken daily at 6 p. m., Pacific time.

The temperature means from 1886 to 1890 were obtained from tridaily observations; from 1891 to 1903, from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1886, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	46	59	79	35	0	52	38	0.9	3	T.	0.6
January.....	44	56	72	32	9	49	34	1.0	4	0.2	2.5
February.....	46	58	75	35	14	54	41	1.0	4	1.8	0.4
Winter mean.....	45	58		34				2.9	11	2.0	3.5
March.....	52	65	87	40	16	56	48	0.8	4	0.7	1.3
April.....	59	74	88	46	29	67	46	0.2	2	0.0	0.6
May.....	68	81	97	53	32	71	64	0.2	1	1.2	0.1
Spring mean.....	60	73		46				1.2	7	1.9	2.0
June.....	77	90	103	62	37	83	72	0.5	2	0.2	0.5
July.....	78	89	104	65	48	81	74	3.8	12	1.3	7.8
August.....	75	86	99	63	47	79	71	4.3	13	4.2	6.2
Summer mean.....	77	88		63				8.6	27	5.7	14.5
September.....	71	83	99	60	39	76	66	2.0	6	1.1	0.7
October.....	63	76	99	50	32	71	60	0.7	3	0.0	0.0
November.....	54	67	80	40	15	59	48	0.8	2	T.	1.2
Fall mean.....	63	75		50				3.5	11	1.1	1.9
Annual mean.....	61	74	104	48	0			16.2	56	10.7	21.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD MAY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 105° or above.	Year.	Minimum below 26°.	Maximum 105° or above.
1897	January, February, March, April, missing; Dec. 3, 4, 17, 18, 20-25.	None.	1900	Feb. 8-10, 24; Dec. 28-30.	June 20; July 10.
1898	Jan. 12-17, 19-22, 25, 26; Mar. 23; Nov. 14, 16, 17, 21, 22; Dec. 11, 13, 24, 25, 31.	Do.	1901	Jan. 2, 11, 12; Feb. 2, 3, 8-11.	None.
1899	Jan. 1, 2, 4-6, 13-15, 23-25; Feb. 4-10, 17, 19, 20; Mar. 11; Dec. 10, 11, 20-23.	Do.	1902	Jan. 27-31; Feb. 1; March, missing.	Do.
			1903	Feb. 3-5, 7, 8, 16, 17; Dec. 25.	August, missing.

NEVADA.

By JAMES H. SMITH,
Section Director.

NEVADA.

General topographic features.^a—The State of Nevada is included between the parallels of 35° and 42° north latitude and the meridians of 114° and 120° west longitude. Its area is 112,090 square miles. It is bounded on the north by the States of Oregon and Idaho, on the east by Utah and the Territory of Arizona, on the south and southeast by the Colorado River, and on the west and southwest by the State of California.

In topographic configuration Nevada is peculiar. To the northwest of the Humboldt River, which flows in a general southwesterly direction nearly across the State, is a main mountain range, having a general easterly and westerly trend, which forms the divide between the drainage basins of that stream and the branches of the great Snake River. This range is not distinct and well defined, as are the Sierra Nevada and Rocky Mountain ranges, but is broken by many low passes and at one point by a broad table-land. In fact, it is not generally recognized as a distinct mountain range, and is without a name, local names only being given to the various spurs radiating from it. Its most prominent features consist of numerous high ridges or spurs, extending north and south from the main divide, and reaching in many cases altitudes of from 9,000 to 12,000 feet.

To the south and westward from the Humboldt River the country consists of a series of narrow mountain ranges and intervening valleys, all having a north and south trend. Along the western border lie the high Sierra Nevada Mountains.

With the exception of small areas in the northeast portion, which drain to the Columbia River, and in the southeast, the waters from which discharge into the Colorado River, the entire State is included within what is known as "The Great Basin," an immense district lying between the Rocky Mountains and the Sierra Nevadas, from which no water flows to the sea.

Climate.—Nevada has a dry and comparatively mild climate. A marked feature of the climate as compared with other States outside of the arid region is the large percentage of clear skies throughout the entire year.

As a rule the winters are moderately mild, with few storms and many bright, cloudless days. The snow remains on the ground only a short time, except at great altitudes. The rainy season begins in October and ends in April; the precipitation is mostly in the form of snow on the mountains. High winds prevail during storms in winter and spring, but during the summer and fall months the winds are light and the weather dry, clear, and pleasant.

Although remarkably high temperatures frequently occur in summer, there has not been a case of sunstroke known in Nevada. Tornadoes are unknown, and hail, fog, and thunderstorms are rather infrequent.

The mean annual temperature is 49°, and the mean annual precipitation from 3 to 12 inches. The greatest precipitation occurs in the eastern, northeastern, and western sections, and the least in the southeastern section. Owing to Nevada's location to the leeward of the Sierra Nevada Mountains, which intercept the rain-bearing winds from the west and deprive them of their moisture, the precipitation in the agricultural valleys of the State is very small.

The highest temperature recorded in Nevada by a self-registering thermometer was 119°, at Eldorado Canyon, Lincoln County, in July, 1889. The lowest temperature recorded was 42° below zero, at Elko, Elko County, in January, 1890.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Churchill (<i>see</i> Carson City)	.....	Western.....	.....	Lyon (<i>see</i> Fort Mohave, Ariz.; Carson City).	.....	Western.....	.....
Douglas (<i>see</i> Carson City)	.....	do.....	.....	Nye.....	Potts.....	Central.....	921
Elko.....	Elko.....	Northeastern.....	919	Ormsby.....	Carson City.....	Western.....	920
Esmeralda.....	Hawthorne.....	Southwestern.....	923	Storey (<i>see</i> Carson City)	.....	do.....	.....
Eureka (<i>see</i> Elko).....	.....	Northeastern.....	.....	Washoe (<i>see</i> Winnemucca)	.....	Northwestern.....	.....
Humboldt.....	Winnemucca.....	Northwestern.....	918	White Pine.....	Ely.....	Eastern.....	922
Lander (<i>see</i> Potts).....	.....	Central.....	.....			
Lincoln.....	Pioche.....	Southeastern.....	924				

^a From Water Supply and Irrigation in Nevada, by L. H. Taylor.

STATE SUMMARY.

Station.	Num-ber.	Temperature.									
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absol-ute maxi-mum.	Date.	Absol-ute mini-mum.	Date.	Average num-ber days with—		
									Maxi-mum above 90°.	Mini-mum below 32°.	
		° F.	° F.	° F.	° F.		° F.				
Winnemucca.....	1	48	62	35	104	July, 1877.....	-28	January, 1888.....	22	136	
Elko.....	2	46	64	26	108	July, 1889.....	-42	January, 1890.....	43	217	
Carson City.....	3	49	63	35	100	.....do.....	-22	.....do.....	8	146
Potts.....	4	47	62	32	110	July, 1896.....	-32	January, 1902.....	51	186	
Ely.....	5	44	61	28	101	July, 1888.....	-36	January, 1889.....	19	211	
Hawthorne.....	6	54	66	40	102	July, 1889.....	-6	January, 1890.....	34	105	
Pioche.....	7	50	62	39	98	July, 1878.....	-16	January, 1883.....	16	133	

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn	Last in spring.	Earliest killing in autumn.	Latest in spring.					
						Inches.	Inches.	Inches.	Inches.	Inches.
Winnemucca.....	1	Sept. 23	May 15	Aug. 22	June 20	8.4	2.7	1.0	1.5	3.2
Elko.....	2					7.7	2.1	1.0	1.4	3.2
Carson City.....	3	Sept. 20	May 20	Sept. 8	June 18	10.8	2.7	0.7	2.1	5.3
Potts.....	4					7.3	3.1	1.4	0.8	2.0
Ely.....	5					12.4	4.7	1.9	2.3	3.5
Hawthorne.....	6					3.4	0.9	0.5	0.7	1.3
Pioche.....	7					11.2	2.8	2.5	1.6	4.3

NEVADA.

Northwestern District: HUMBOLDT COUNTY. Station: WINNEMUCCA.

J. C. HAYDEN, Observer.

[Established by the U. S. Signal Service July 15, 1877. Latitude, 40° 58' N. Longitude, 117° 43'. Elevation, 4,322 feet.]

This station is located in the valley of the Humboldt River, about 75 miles south of the southern boundary of Oregon. The valley runs in a northeasterly and southwesterly direction. The station is bounded on all sides by steep mountain peaks and short ranges, rising from 1,000 to 4,000 feet above the valley, which is only from 1 to 5 miles broad and about 200 miles long.

The thermometers are exposed on the top of the court-house on Bridge street in a standard instrument shelter, 59 feet above the ground and 12 feet above the roof. The rain and snow gages are also located on the roof of the court-house, 25 feet southwest of the instrument shelter. The present place of exposure of the rain and snow gages is not thought to be a good one, as the roof is not flat but sloping, and during high winds much precipitation is carried over their tops.

Tabulated data are from the following periods of observation: Humidity, fifteen years; snowfall, twelve years; remainder of data is from the full period of observation, twenty-six and one-half years, July 15, 1877, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.	32	42	65	21	-20	38	25	1.2	10	0.9	1.8	7.4	5.3	63	1.61	77	1.14	NE.
January.	27	38	59	17	-28	36	15	1.1	9	1.4	3.1	8.6	10.5	64	1.35	76	0.98	SW.
February.	33	44	69	22	-22	41	16	0.9	9	0.6	1.6	5.3	3.2	57	1.41	73	1.03	SW.
Winter mean.	31	41		20				3.2	28	2.9	6.5	21.3		61	1.46	75	1.05	SW.
March.	40	52	82	28	-3	47	32	0.8	9	0.2	0.9	3.4	5.0	43	1.83	66	1.33	SW.
April.	47	59	83	34	12	52	41	0.9	5	0.2	1.0	3.0	4.0	36	1.66	63	1.61	SW.
May.	54	68	96	40	17	61	48	1.0	8	0.5	1.0	1.1	3.5	31	2.10	59	2.01	SW.
Spring mean.	47	60		34				2.7	22	0.9	2.9	7.5		37	1.86	63	1.65	SW.
June.	63	77	98	48	29	69	58	0.6	5	0.2	0.6	T.	0.7	23	2.08	51	2.23	SW.
July.	71	88	104	54	33	76	67	0.2	2	0.0	0.0	T.	7.5	16	2.04	37	1.99	SW.
August.	70	88	102	52	26	74	63	0.2	1	T.	0.1	0.0	0.0	14	1.73	34	1.65	SW.
Summer mean.	68	84		51				1.0	8	0.2	0.7	T.		18	1.95	41	1.96	SW.
September.	60	77	94	43	16	67	55	0.3	3	0.2	0.1	T.	T.	21	1.84	42	1.54	SW.
October.	48	64	87	33	11	52	43	0.5	4	0.1	1.4	T.	6.0	33	1.90	55	1.46	SW.
November.	37	51	73	23	-19	43	28	0.7	5	0.5	0.3	1.0	3.0	47	1.66	67	1.30	SW.
Fall mean.	48	64		33				1.5	12	0.8	1.8	1.0		34	1.80	55	1.43	SW.
Annual mean.	48	62	104	35	-28			8.4	70	4.8	11.9	29.8	10.5	37	1.77	58	1.52	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6, 9; Feb. 11, 22; Dec. 14, 25, 26.	Aug. 1, 24, 25.	1898	Jan. 10, 11, 13, 14, 21, 26-28, 30; Dec. 11.	July 26-31; Aug. 1, 2, 9-12.
1895	Jan. 25, 26, 28-30; Feb. 1; Dec. 18, 22, 23, 25, 26, 29.	Aug. 4, 5.	1899	Feb. 4-6.	July 17-19.
1896	Nov. 28, 29.	July 4, 10, 11, 18-21.	1900	None.	June 20; July 29-31.
1897	None.	July 11, 12; Aug. 14-19, 21-24.	1901	Jan. 1, 10; Feb. 10-12.	July 6, 23-25, 29, 30; Aug. 3.
			1902	Jan. 26, 28, 29.	July 20, 24; Aug. 6.
			1903	Jan. 29; Feb. 3-7, 12-21.	Aug. 18.

NEVADA.

Northeastern Section: ELKO COUNTY. Station: ELKO.

C. H. SPROULE, Observer.

[Established by the Nevada State weather service February, 1888. Latitude, 40° 50' N. Longitude, 115° 46' W. Elevation, 5,063 feet.]

This station adjoins the post-office in the town of Elko, and is about 300 yards from the Humboldt River, which runs through the town east and west.

The maximum and minimum thermometers are exposed in a standard shelter, which is attached to the east side of a store building 4 feet above the ground.

The rain gage is located near the dwelling house of the observer, and is away from any building or fence. The top of the gage is 3½ feet above the ground.

Maximum and minimum temperature data, snowfall, and number of days with 0.01 or more precipitation are for the period of observation 1888-1903, inclusive. The remaining tabulated data are for the period February 1, 1870, to December 31, 1903. The mean temperature was obtained from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi-ma.	Absol-ute maxi-mum.	Mean of the mini-ma.	Absol-ute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	27	43	73	11	-33	32	17	1.2	5	0.3	0.1	10.1	10.0
January.....	24	38	62	7	-42	36	13	1.0	5	0.1	1.6	12.5	15.0
February.....	27	46	72	13	-41	39	15	1.0	4	T.	1.5	8.9	12.0
Winter mean.....	26	42		10				3.2	14	0.4	3.2	31.5	
March.....	36	54	84	22	-15	43	27	0.9	6	0.0	0.2	9.4	13.0
April.....	45	64	90	29	8	59	35	0.6	3	0.0	3.9	0.8	3.0
May.....	54	69	98	33	5	65	41	0.6	3	0.0	1.4	0.2	1.0
Spring mean.....	45	62		28				2.1	12	0.0	5.5	10.4	
June.....	64	79	102	38	20	73	51	0.5	2	0.1	1.0	T.	0.5
July.....	72	92	108	44	28	82	63	0.2	1	0.0	0.1	0.0	0.0
August.....	69	90	105	41	24	77	60	0.3	1	0.0	0.0	0.0	0.0
Summer mean.....	69	87		41				1.0	4	0.1	1.1	T.	0.5
September.....	57	77	96	32	9	70	49	0.2	1	0.1	0.1	T.	0.5
October.....	45	66	88	26	0	55	38	0.5	3	T.	2.1	0.7	5.0
November.....	34	55	81	20	-16	47	19	0.7	3	0.3	3.1	2.2	6.0
Fall mean.....	45	66		26				1.4	7	0.4	5.3	2.9	
Annual mean.....	46	64	108	26	-42			7.7	37	0.9	15.1	44.8	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6, 9, 17, 19, 27, 29; Feb. 3-6, 10, 11, 13-16, 22-26; Mar. missing; Nov. 16, 18, 19, 26, 30; Dec. 10, 11, 13, 14, 24-28, 31.	July 3-13, 18-20, 22-23, 28-31; Aug. missing; Sept. 9.	1898	Jan. 8, 10-14, 18, 21, 23-31; Mar. 16; Nov. 10, 12, 14, 21, 25-27; Dec. 6, 11-13, 22-25, 27, 29, 30.	June missing; July 4, 6, 8-12, 14-16, 23-31; Aug. 1-4, 9-11, 15.
1895	Jan. 2, 5, 7, 8, 10-12, 17, 18, 22, 25, 26, 28-30; Feb. 1, 4-8, 11, 14-16, 19; Nov. 5, 6, 23, 24; Dec. 16, 18-23, 25-31.	June 23, 25, 26; July 1, 14, 16, 19, 20, 22, 23, 25-27; Aug. 1-7, 10-20, 24.	1899	Jan. 12, 13; Feb. 4-7; Dec. 6, 7, 14, 17-21, 26, 27.	June 17; July 5, 9, 11, 17, 19, 20, 25, 27.
1896	Missing.	Missing.	1900	Dec. 31.....	June 20, 27, 28; July 8, 13, 14, 17, 29, 30; Aug. 1.
1897	Jan. 17-19; Feb. and Mar. missing; Nov. 15; Dec. 3-5, 16, 18, 20, 21, 24, 25.	May 29; June missing; July 11-15, 26-29, 31; Aug. missing.	1901	Jan. 1, 9-11, 16-19, 30; Feb. 1, 2, 4, 9-13.	July 6, 11, 12, 18-23, 25, 28-31; Aug. 3.
			1902	Jan. 14, 23, 26-30; Feb. 2, 3; Dec. 29, 30.	July 20, 22, 23, 25, 26, 31; Aug. 1, 3-7.
			1903	Jan. 17-19, 30; Feb. 1-7, 12-19; Dec. 5, 25-27, 30.	July 11, 13, 16, 20, 22, 24-27, 31; Aug. 5, 10-12, 15, 17-20.

NEVADA.

Western District: ORMSBY COUNTY. Station: CARSON CITY.

J. H. SMITH, Section Director.

[Established by the U. S. Signal Service, December 1, 1887. Latitude, 39° 10' N. Longitude, 119° 46' W. Elevation, 4,674 feet.]

This station is located in Eagle Valley, Ormsby County, close to the eastern base of the Sierra Nevada Mountains. The valley is about 5 miles long and 4 miles wide, with high mountains on the east and west sides and moderately low ranges on the north side. The Sierra Nevada Mountains on the west side are 6,500 feet above sea level and about 2,000 feet above the valley.

This station was located in the State Printing Office Building from December 1, 1887, until November 20, 1891, when it was removed to the Government building, where it has remained up to the present time.

The temperature readings were taken at the Carson Observatory until the erection of a standard instrument shelter on the roof of the Government building April 1, 1897.

The dry and wet thermometers are exposed in a standard shelter, the bottom of which is 10 feet above the platform; the thermometers are 82 feet above the ground. The rain gage is located on the platform 6 feet northeast of the instrument shelter and 77 feet above the ground.

The location is a very good one for the wind instruments, which are elevated above all obstructions in the immediate vicinity of the station. The anemometer cups are 92 feet from the ground.

Tabulated data are from the following periods of observation: Snowfall data and wind direction, ten years, 1894-1903; humidity, fifteen years, 1889-1903; remainder of data from full period of observation, sixteen years, December 1, 1887, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
												Average depth.	Greatest depth in 24 hours.					
December.....	34	46	67	23	- 7	39	31	1.7	7	0.4	5.6	5.0	5.8	71	1.26	56	1.60	SW.
January.....	33	44	63	21	-22	40	21	2.0	7	0.3	0.1	8.3	15.7	73	1.18	55	1.46	SW.
February.....	36	47	68	24	-14	41	22	1.6	7	1.7	4.0	10.2	11.5	71	1.32	50	1.59	SW.
Winter mean.....	34	46	.....	23	.....	.....	.....	5.3	21	2.4	9.7	23.5	.....	72	1.25	54	1.55	S.W.
March.....	41	52	74	29	4	46	34	1.3	8	1.2	2.5	7.5	7.7	64	1.40	40	1.57	SW.
April.....	47	60	82	34	16	52	43	0.6	4	0.2	1.7	2.2	9.0	59	1.56	31	1.56	SW.
May.....	54	67	88	40	22	59	48	0.8	5	0.2	2.6	0.4	3.4	62	2.04	31	1.97	SW.
Spring mean.....	47	60	.....	34	.....	.....	.....	2.7	17	1.6	6.8	10.1	.....	62	1.67	34	1.70	SW.
June.....	61	76	93	46	27	67	56	0.3	2	T.	0.3	T.	0.3	56	2.20	25	2.13	W.
July.....	68	84	100	51	35	70	64	0.1	2	T.	0.3	0.0	T.	52	2.44	21	2.23	W.
August.....	67	84	100	50	34	71	62	0.3	2	0.2	T.	0.0	0.0	55	2.58	23	2.44	W.
Summer mean.....	65	81	.....	49	.....	.....	.....	0.7	6	0.2	0.6	0.0	.....	54	2.41	23	2.27	W.
September.....	60	75	92	44	18	66	55	0.3	2	0.1	0.9	0.0	T.	58	2.20	26	2.14	SW.
October.....	50	65	85	35	17	53	47	0.5	4	0.4	T.	0.9	4.0	65	1.78	34	1.89	SW.
November.....	42	55	74	28	8	44	39	1.3	5	0.8	T.	1.5	3.8	67	1.47	43	1.75	SW.
Fall mean.....	51	65	.....	36	.....	.....	.....	2.1	11	1.3	0.9	2.4	.....	63	1.82	34	1.93	SW.
Annual mean.....	49	63	100	35	-22	.....	.....	10.8	55	5.5	18.0	36.0	15.7	63	1.79	36	1.86	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 5, 6; Feb. 11, 17.	None.	1900	None.....	July 29.
1895	Jan. 1, 20, 26, 28, 29.	Aug. 5.	1901	Feb. 10-12.	July 30.
1896	.....	July 18-20.	1902	Jan. 26.	July 24, 25; Aug. 6, 7.
1897	Feb. 21-24.	Aug. 18, 22, 23.	1903	Jan. 29; Feb. 3, 5, 6, 13-17.	None.
1898	Jan. 8, 11, 24, 27, 28.	July 26-31; Aug. 1, 2, 9-12.			
1899	Jan. 5; Feb. 6.	July 18.			

NEVADA.

Central Section: NYE COUNTY. Station: POTTS.

BESSIE POTTS, Observer.

[Established by the Nevada State weather service, February 1, 1892. Latitude, 38° 50' N. Longitude, 116° 20' W. Elevation, 6,995 feet.]

This station is situated in the central part of Monitor Valley. The mountains are about 6 miles distant from the station. The maximum and minimum thermometers are exposed in a standard shelter attached to the north side of the observer's dwelling house, about 4½ feet above the ground.

The rain gage is located in an open space near the thermometer shelter. The top of the gage is 5 feet above ground.

Tabulated data are for the period of observation February 1, 1892, to December 31, 1903. The mean temperature was obtained from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	26	40	65	12	-20	34	15	0.6	8	0.2	0.1	5.2
January.....	23	36	62	13	-32	31	16	0.7	6	1.0	0.4	8.0
February.....	26	38	65	16	-25	38	13	0.7	5	1.0	0.1	8.0
Winter mean.....	25	38		14				2.0	15	2.2	0.6	20.6
March.....	32	44	67	21	- 8	41	25	0.9	7	0.1	0.4	6.0
April.....	45	58	86	33	0	52	35	0.8	4	0.1	2.3	5.0
May.....	55	71	98	44	10	64	45	1.4	7	0.4	6.3	4.0
Spring mean.....	44	58		33				3.1	18	0.6	9.0	22.2
June.....	71	85	105	55	26	76	62	0.2	2	0.0	0.1	3.0
July.....	76	94	110	59	26	84	63	0.6	3	0.0	1.3	0.0
August.....	74	89	108	54	28	87	63	0.6	4	0.2	2.4	T.
Summer mean.....	74	89		56				1.4	9	0.2	3.8	0.3
September.....	58	78	100	35	10	75	51	0.2	1	T.	0.0	4.0
October.....	46	62	94	27	5	52	44	0.2	2	0.2	9.0	4.0
November.....	36	50	70	20	-17	45	28	0.4	3	0.8	0.1	5.0
Fall mean.....	47	63		28				0.8	6	1.0	0.1	5.5
Annual mean.....	47	62	110	32	-32			7.3	48	4.0	13.5	8.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 2, 3, 5, 8, 16, 23, 25; Feb. 1-3, 11, 13, 14, 22, 23; Nov. 16-18; Dec. 17, 26-30.	June missing; July 3-5, 7-11, 13, 15-17, 19, 21-24, 28-31; Aug. 4, 5, 11-15, 18.	1900	Dec. 25-31.....	June 6, 19, 20-30; July 1, 6-13, 17-20, 27, 28; Aug. 1-3.
1895	Jan. 7, 20, 24, 25, 27-31; Feb. 1-7, 15, 16; Nov. 5, 7-9, 22-24; Dec. 16-18, 21-30.	June 13, 14, 20-25, 29; July 2-4, 6, 9, 11, 16-31; Aug. 1-4, 6-10, 12-20, 24; Sept. 7, 9, 10.	1901	Jan. 1-5, 8-13, 17-20, 24, 26, 27, 29-31; Feb. 1, 2, 4, 8-13; Mar. 24, 26; Apr. 4, 7, 8, 10; Nov. and Dec. missing.	July 8-14, 16, 25-29.
1896	Missing.	Missing.	1902	Jan. 17-22, 26-31; Nov. 23-26; Dec. 23, 28, 29.	June 4-7, 11, 17, 18, 27, 28; July record incomplete; Aug. 4, 22.
1897	Jan. 17-19; Feb. 13, 21-24; Mar. 9, 11, 13, 21, 22; Nov. 15; Dec. 3, 4, 21.	June 7, 13; July and Aug. missing.	1903	Jan. 29, 30; Feb. 1-7, 9, 12-17; Mar. 7, 9, 18, 19; Dec. 4, 5, 7, 23, 24.	July 25, 28, 30, 31; Aug. 1-3, 7-9, 11, 12, 18, 19, 22; Sept. 1-3, 19.
1898	Jan. 8, 10-14, 23, 24, 26-31; Mar. 22; Dec. missing.	June 18, 20, 21, 25, 28, 29; July 1, 2, 4-11, 14-18, 21, 24, 27-31; Aug. 1-7, 10-12, 14-16, 18, 24-26.			
1899	Jan. 9, 10, 12-15, 21, 23-30; Feb. 1-9, 12, 15; Dec. 6-8, 13-24.	June 8, 10, 19, 20, 21, 28; July 1-5, 7, 10-19, 25, 26; Aug. 1-3.			

NEVADA.

Eastern Section: WHITE PINE COUNTY. Station: ELY.

D. S. DICKERSON, Observer.

[Established by the Nevada State weather service, January 1, 1888. Latitude, 39° 10' N. Longitude, 114° 57' W. Elevation, 6,000 feet.]

This station is situated near Steptoe Valley, on Murray Creek, at the base of the Egan range of mountains. The mountains to the east of the station are distant about 5 miles. The valley and mountain ranges have a north and south trend.

The instruments consist of a set of self-registering maximum and minimum thermometers and a standard 8-inch rain gage.

The thermometers are exposed in a standard cotton-region shelter in front of the court-house. The bottom of the shelter is 4 feet above the ground.

The rain gage is located in an open space in front of the court-house and about 30 feet from the building. The top of the gage is 3½ feet above the ground.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. The mean temperature was obtained from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.	In.	In.	In.	In.			
December.....	27	40	67	11	-22	34	22	1.3	5	1.1	2.3	10.2	12.0	
January.....	24	38	66	9	-36	32	17	1.1	4	1.3	0.6	10.1	7.0	
February.....	30	42	65	16	-23	36	20	1.1	4	0.6	1.3	9.9	12.0	
Winter mean.....	27	40		13				3.5	13	3.0	4.2	30.2		
March.....	33	48	68	19	-12	42	25	1.7	6	2.6	1.3	14.6	12.0	
April.....	43	59	83	28	3	50	37	1.5	5	1.5	2.5	9.8	16.0	
May.....	51	68	90	34	13	56	41	1.5	5	0.6	4.0	5.6	14.0	
Spring mean.....	42	58		27				4.7	16	4.7	7.8	30.0		
June.....	60	80	98	40	21	66	52	0.3	2	0.0	2.1	0.2	3.0	
July.....	68	88	101	47	30	74	62	0.6	3	0.3	0.7	0.0	T.	
August.....	64	83	96	47	25	70	60	1.0	5	0.8	0.8	0.0	0.0	
Summer mean.....	64	84		45				1.9	10	1.1	3.6	0.2		
September.....	55	73	91	35	15	63	50	0.6	3	T.	2.0	0.4	3.0	
October.....	43	60	79	27	3	48	38	0.8	4	0.0	0.1	2.4	6.0	
November.....	34	52	69	19	-16	40	24	0.9	3	0.4	0.3	4.6	10.0	
Fall mean.....	44	62		27				2.3	10	0.4	2.4	7.4		
Annual mean.....	44	61	101	28	-36			12.4	49	9.2	18.0	67.8	16.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 3, 5-8; Feb. missing; Mar. 5; Dec. 8, 10, 12, 24-26.	None.	1899	Jan. 3, 8, 12, 22; Feb. 3-5; Dec. 13, 17-20.	July 19, 24.
1895	Jan. 6, 7, 24, 25, 27, 28; Feb. 3, 14, 15; Mar. 15; Nov. 4, 6, 24; Dec. 13, 16, 19, 22, 24, 28, 30.	Aug. 6.	1900	Dec. 30, 31.	June 20, 21, 27; July 9, 10, 17, 30, 31.
1896	Missing.	None.	1901	Jan. 1, 8-10; Feb. 1, 9, 12; Dec. 12.	June 29; July 6, 19, 20, 29.
1897	Jan. 3, 17; Feb. 9, 12, 21-23, 25; Mar. 7, 8, 10, 12, 19, 21, 22, 30; Nov. 25; Dec. 2, 3, 18-20.	Do.	1902	Jan. 25-29; Mar. 3; Dec. 2, 13.	June 23; Aug. 2.
1898	Jan. 7, 10-12, 14, 22-27; Feb. 8; Mar. 18, 22; Nov. 8, 20; Dec. 21, 30.	June 28; July 25, 28-30; Aug. 12.	1903	Jan. 17-19, 30; Feb. 1, 3-7, 9, 12-16; Mar. 1, 7; Dec. missing.	None.

NEVADA.

Southwestern Section: ESMERALDA COUNTY. Station: HAWTHORNE.

T. G. WATTERSON, Observer.

[Established by the Nevada State weather service January 1, 1888. Latitude, 38° 30' N. Longitude, 118° 40' W. Elevation, 4,569 feet.]

This station is situated in Lake Valley, about 5 miles from the lower end of Walker Lake. Mountains surround the town on three sides, the valley and lake opening toward the north. The western mountains are the highest, Mount Grant being over 12,000 feet.

The maximum and minimum thermometers are exposed in a standard shelter, which is attached to the north side of the observer's residence, the bottom of the shelter being 4 feet above the ground.

The rain gage is 50 feet north of the shelter, in the open, and is about 5 feet above the ground.

Tabulated data are for the period of observation January 1, 1888, to December 31, 1903. The mean temperature was obtained from the readings of the maximum and minimum thermometers.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	36	47	69	24	0	42	32	0.4	3	T.	1.5	2.1	12.0
January.....	34	44	65	23	— 6	40	26	0.5	4	1.1	0.2	2.2	4.0
February.....	38	48	68	26	2	45	28	0.4	3	0.4	1.0	2.2	5.5
Winter mean....	36	46		24				1.3	10	1.5	2.8	6.5	
March.....	44	56	78	31	9	50	38	0.3	3	T.	0.2	1.3	4.0
April.....	51	64	88	37	16	59	45	0.3	2	1.2	1.2	0.4	0.5
May.....	59	72	93	45	22	68	52	0.3	4	0.0	1.1	0.2	0.5
Spring mean....	51	64		38				0.9	9	0.1	2.5	1.9	
June.....	68	82	100	52	32	74	61	0.3	2	0.0	0.2	0.0	0.0
July.....	75	90	102	59	45	79	71	0.1	2	0.0	0.1	0.0	0.0
August.....	74	89	102	59	39	79	68	0.1	1	0.0	1.0	0.0	0.0
Summer mean....	72	87		57				0.5	5	0.0	1.2	0.0	0.0
September.....	65	79	97	50	28	74	53	0.2	1	0.0	0.9	0.0	0.0
October.....	54	67	88	40	21	58	50	0.2	1	0.2	T.	0.0	3.8
November.....	44	57	78	31	15	47	41	0.3	2	T.	0.0	1.4	4.0
Fall mean.....	54	68		40				0.7	4	0.2	0.9	1.4	
Annual mean.....	54	66	102	40	— 6			3.4	28	1.8	7.4	9.8	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 6.....	July 9.	1901	None.....	June 28-30; July 11, 21-23, 26-31; Aug. 13, 14.
1895	None.....	June 23; July 14, 15, 23-25; Aug. 4-6, 14.	1902	Jan. and Feb. missing.	June 6, 22-24; July 15, 18-21, 25-27, 29-31; Aug. 3, 5-9.
1896	Missing.....	None.	1903		June 27-29; July 12, 20; Aug. 4, 8-11, 18-21; Sept. 4.
1897	None.....	July 11, 12; Aug. 17, 18, 22, 23.			
1898	Jan. 11, 18.....	June 27; July 10, 13, 15, 16, 24, 26-31; Aug. 1-3, 9-12, 20.			
1899	None.....	June 16, 29; July 4, 16-21.			
1900	do.....	June 20, 21, 27, 29; July 7, 8, 11, 12, 17-19, 29-31; Aug. 20, 21, 27, 29.			

NEVADA.

Southeastern District: LINCOLN COUNTY. Station: PIOCHE.

[Established by Signal Service July 29, 1877; discontinued as a regular station May 30, 1883; established as a voluntary station, with Mr. W. P. Dooley as observer, February 1, 1888; discontinued October 31, 1893. Latitude, 37° 55' N. Longitude, 114° 26' W. Elevation, 5,933 feet.]

While the station was maintained by the Signal Service, from 1877 to 1883, the thermometers were exposed 5 feet above the ground. Other information in regard to this station is not available.

Mean temperature, highest and lowest monthly means, and precipitation data are for the periods of observation, August 1, 1877, to May 30, 1883, and February 1, 1888, to October 31, 1893. The remaining data are for the period August 1, 1877, to May 30, 1883, only.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	34	43	65	25	-13	38	27	2.4	.....	1.8	11.1
January.....	29	38	58	20	-16	38	24	1.0	.....	0.2	1.1
February.....	33	43	69	23	-1	39	25	0.9	.....	0.4	0.8
Winter mean.....	32	42	.....	23	.....	.....	.....	4.3	.....	2.4	13.0
March.....	40	53	77	30	5	49	34	0.8	.....	0.1	2.1
April.....	48	58	80	36	17	55	42	1.2	.....	0.5	1.3
May.....	56	68	84	43	26	58	53	0.8	.....	T.	2.1
Spring mean.....	48	60	.....	36	.....	.....	.....	2.8	.....	0.6	5.5
June.....	65	78	93	52	34	68	60	0.0	.....	T.	0.1
July.....	73	87	98	59	45	75	70	0.4	.....	0.2	0.8
August.....	72	85	96	60	45	75	64	1.6	.....	0.5	3.3
Summer mean.....	70	83	.....	57	.....	.....	.....	.....	.....	.....	.....
September.....	64	76	92	51	32	68	40	0.5	.....	0.2	2.0
October.....	50	62	79	39	19	54	40	0.6	.....	0.5	1.6
November.....	38	49	67	28	0	45	27	0.5	.....	0.3	1.1
Fall mean.....	51	62	.....	39	.....	.....	.....	1.6	.....	1.0	4.7
Annual mean.....	50	62	98	39	-16	.....	.....	11.2	.....	4.7	27.4

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1877, TO JUNE 15, 1883.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1877	Dec. 27, 31.....	None.	1881	Jan. 9.....	None.
1878	Jan. 1-3; Dec. 13, 26, 27.	July 29-31.	1882	Jan. 12-14, 16, 17, 20, 26, 30; Feb. 18-20;	July 3, 12.
1879	Jan. 7, 8, 15, 17; Feb. 5, 6; Dec. 23-26, 30.	July 25; Aug. 1, 11.		Mar. 7-20; Nov. 11, 12; Dec. 31.	
1880	Jan. missing; Feb. 3, 12, 13, 17, 18, 28; Mar. 13-15; Nov. 16-18.	July 23, 24.	1883	Jan. 1, 13, 16, 18-21; Mar. 2-6, 8, 9, 16, 17.	

WASHINGTON.

By GEORGE N. SALISBURY,
Section Director.

WASHINGTON.

The climate of this State, as of all others, is determined by the latitude, the topography, the proximity or remoteness of the sea, the movement and fluctuation of high and low pressure areas, and the direction and force of the general atmospheric currents. In its ensemble of the above factors the State is peculiarly favored. Were the climate determined by the latitude alone the extreme northwestern location of Washington would make it one of the coldest States of the Union.

In the equalizing of temperature by the great Pacific Ocean, that washes 150 miles of the western border of the State and bears its tides in a mediterranean sea more than 150 miles inland, lies the secret of the phenomenal mildness of the temperature for a section of such high latitude (46° – 49° N.), and this because of the fact that the prevalent air currents are from a westerly quarter; that is, from the sea to the land. Were they from the land to the sea the ameliorating influence of the latter would scarcely be felt and the winters of Washington would be far more severe, while the summers would be hotter than they are. If, in addition, it were not for the protection afforded by the Rocky Mountain Divide and the Bitter Root Range many more of the Canadian cold waves would affect eastern Washington, and but for the Cascade Range they would extend in almost full severity to the coast.

The Cascade Range, a rugged and precipitous mountain wall, 4,000 to 8,000 feet in elevation, stretching nearly north and south across the entire State, separates it into two distinct divisions, which are almost in the proportion of 2 to 3, the eastern division having the larger area. This range and the Olympics or Coast Range are the dominant features of the State's topography. The Olympics occupy the greater part of the peninsula lying between Puget Sound and the Pacific Ocean. An extension of this range to the southward, but to which the name is not locally applied, is separated from the portion known as the Olympics by the broad valley of the Chehalis River. The Olympics are from 2,000 to 8,000 feet in altitude and extremely rugged. The extension of the Coast Range is of much lower elevation, being only 2,000 to 3,000 feet, and more rounded in outline.

A third topographical feature is the great Columbian Plain, a plateau of varying elevation from a few hundred up to 3,000 feet, which occupies all of the State east of the Cascades, and upon which arise the Okanogan highlands in the north and the Blue Mountains in the southeast part of the State. The fourth important topographical feature is the Puget Sound Basin, occupying the entire depression between the Olympic and Cascade mountains. As the name indicates, it is in this depression that is situated the arm of the sea which is known as Puget Sound. The basin varies in elevation from sea level to about 1,000 feet.

To recapitulate: The main physical features of the State, passing from the ocean eastward, are: (1) The Olympic Mountains and Coast Range; (2) the Puget Sound Basin; (3) the Cascade Range; (4) the Columbian Plain, upon which arise to moderate elevation the Okanogan highlands and the Blue Mountains. By far the most important of these in its climatic influence is the Cascade Mountain Range. Of the two unequal divisions into which it separates the State, one, the western division, is a region of abundant rainfall, cool summers, and mild winters, and is mostly covered with forests of gigantic evergreens; the other, the eastern division, is a region of moderate (over much of its area scanty) rainfall, hot summers, cold though not severe winters, and the greater portion of it is treeless.

It is apparent that a country of such diverse physical features must have a great diversity of climate, and it is, therefore, very difficult to generalize about the climate of Washington, either as regards temperature or rainfall, without being inaccurate. To say that the normal annual temperature of the State is 49.3° F. and the normal annual precipitation 37.1 inches is to give information which, while correctly deduced, is almost wholly without value for any particular locality. The wide diversity of the climate requires separate treatment of the different physical divisions. Only one broad generalization can be safely made. In regard to precipitation, the Cascade Mountain barrier separates the State into two divisions, the wet and the dry—the former west of the Cascades and the latter east of them. This is the common classification, yet greater accuracy requires that the above sections be each subdivided—the wet division into the moist and very wet, the dry division into the semiarid and the dry.

Precipitation.—The wet district lies between the ocean and the summit of the Coast Range and Olympic Mountains. It has a rainfall of 60 to 120 inches annually, 75 per cent of which occurs during a so-called "wet season" from November to April, inclusive. The moist district occupies the Puget Sound Basin, between the Olympics and the Cascade Mountains. It has a precipitation of 25 to 60 inches annually, three-fourths of which occurs in the "wet season" from November to April. The dry district, comprising the eastern and northern portions of the State, has a precipitation from rain and snow of 12 to 25 inches annually. The very dry or semiarid district occupies the central portion of the State east of the Cascades, and has, everywhere, a precipitation from rain and snow combined of less than 12 inches annually.

In the wet district is comprised the western parts of Clallam and Jefferson counties, Chehalis, Pacific, Mason, and Wahkiakum counties. The western slope of the Cascades, from the foothills to the summit, has also an annual precipitation of upward of 60 inches, and is therefore a wet district. The moist district comprises the counties of San Juan, Island, Kitsap,

Thurston, and the western portions of Whatcom, Skagit, Snohomish, King, Pierce, Lewis, Cowlitz, and Clarke counties. The eastern portion of the latter counties, from the foothills upward, as well as the greater part of Skamania County, is within the wet district of the western slope of the Cascades. A small area in Jefferson and Island counties about Port Townsend and Coupeville has an annual precipitation less than 25 inches, and may therefore be classed as dry. The dry district embraces Okanogan, Stevens, Ferry, Spokane, Lincoln, northern Douglas, most of Adams, Whitman, Asotin, Columbia, Garfield, eastern Wallawalla, Chelan, western Kittitas, western Yakima, and western Klickitat counties. These counties comprise, in the eastern division of the State, the limits within which the staple crops may be raised successfully without irrigation, and correspond, leaving out the westernmost ones, with the so-called "wheat belt." In the semiarid or very dry region, with an annual rainfall of 12 inches or less, are embraced Franklin, western Adams, western Wallawalla, southern Douglas, eastern Kittitas, eastern Yakima, and eastern Klickitat counties. Within this region crops can not be successfully grown without the aid of irrigation. The fluctuation of annual precipitation is comprised within the limits of 25 per cent less than normal and 25 per cent greater than normal, the same for both eastern and western divisions, but it is less than that for the State as a whole, because years of excess or deficiency in the two divisions are not always simultaneous.

The reasons for the above distribution of rainfall may be briefly outlined as follows:

The storms that come from the ocean precipitate a large share of their moisture on the western slopes of the Coast Range and Olympics, because the mountain barrier elevates the vapor-laden air to a great height, where it is cooled by expansion and the cold of elevation, thus condensing the vapor and producing heavy rain on the lower slopes and the coastal strip, while it becomes heavy snow on the mountains. The general trend of the Olympics is from northwest to southeast, so that the southern part of the coastal strip is the wider and the heavy rain is carried far inland. The broad Chehalis Valley forms a break in the range, through which heavy vapor-laden clouds are carried to the upper Sound country, giving a heavy precipitation to the region about Olympia. Northeast of the range, or to their leeward, since the vapor-bearing winds come from the south to west, the precipitation is much lessened, so that the eastern coast of the Juan de Fuca Strait and the islands of Puget Sound have only one-third as much rain as falls on the coastal strip. The moisture-laden clouds that are brought into the upper part of the Puget Sound Basin through the Chehalis and Columbia valleys are carried by prevailing southerly winds over the entire extent of the basin, so that it has an ample rainfall of 25 to 60 inches annually. On the western slope of the Cascades the ascent of the vapor-laden air again causes rapid condensation and heavy precipitation, through expansion and the cold of elevation. Heavy snow falls during the winter in the mountains. On the eastern slope the air descends rapidly toward the Columbia River into a region that has a greater capacity for moisture, so that less vapor is condensed and precipitated. Though this is true at all times, it is especially marked in summer, when the air over the treeless, and in many places sandy, Columbian plain becomes greatly heated. Therefore the region along the Columbia River in the central part of the State has the minimum annual precipitation, and there is a great semiarid to arid district with from only 6 to 12 inches of rain and snow a year. To the east, north, and southeast of the semiarid plain, as the vapor is borne up the slope of the plain to greater elevation, it is condensed more and more copiously, so that the precipitation gradually increases with the elevation from 12 to 24 or 25 inches annually. The Blue Mountains play quite a prominent part in increasing the rainfall of the southeast counties, especially in Garfield, Columbia, and the eastern part of Wallawalla counties, where it increases quite rapidly toward the mountains. They have also quite a marked effect upon the temperature in winter when the winds are southerly, causing abnormal high temperatures, the winds having the characteristics of the "chinook," as it is known in the West, or the "foehn" of the Alps.

Temperature.—In respect to temperature the coastal strip has almost a marine climate, except in occasional instances when cold north to east winds blow from the land at the time cold waves of great intensity are in progress in Alberta, British Columbia, and Montana. The mean annual or normal temperature is 47° to 51°. In January it is 36° to 42°, in April 46° to 49°, in July 57° to 63°, and in October 48° to 55°. The minimum temperature has never been lower than 10° above zero, at Aberdeen. The maximum gets above 90° but once a year on an average. It descends to 32° or below forty-two times a year on an average.

The Puget Sound Basin has a climate partaking somewhat of the marine, but greatly modified by occasional cold winds from across the Cascade Mountains and by warm winds from the interior of the continent at times in summer. The rain storms that are so frequent in winter have about the temperature of the sea in this latitude, and hence the rainy days in winter are very mild. This is true both because the air is brought from the sea and because of the heat produced by the condensation of vapor during heavy rains caused by strong ascensional currents. As is well known, the heat produced by the condensation of vapor is equal to that originally required to evaporate the water from which the vapor was produced. Whenever there is a dry spell in winter the air is sharp and frosty, as it is either coming from east of the Cascade Mountains or is a descensional current from an anticyclonic area which is central over the Puget Sound Basin. The mean annual or normal temperature is from 46° in the north to 52° in the south. In January it is 34° to 40°, in April 44° to 50°, in July 60° to 65°, and in October 46° to 52°. The greatest extremes of temperature for the region are 102° for the highest, at Centralia, and 6° below zero for the lowest, at Blaine. At Seattle the average number of days with maximum above 90° in a year is 1; the average number of days with minimum below 32° is 21.

East of the Cascades the climate is essentially continental, although undoubtedly modified by storms and air currents that come from the sea. There is a great diversity and range of temperature, as well as rainfall. Stevens and Douglas counties, the former in the extreme northeast, the latter in central Washington, are the coldest. The former is cold in winter on account of the latitude, elevation, and because exposed to the north and northeast winds that blow from over the Rocky Mountains in time of cold waves in the Canadian provinces. The latter locality is cold because of its elevation, from 2,000 to 3,000 feet above sea level, and because its level character gives a wide sweep to cold winds. Usk, in Stevens County, has a record of 33° below zero in one or two cold spells; Waterville, Douglas County, has a record of 30° below. The mean annual temperature of Stevens County is 44° to 46°, ranging from 20° in January to 68° in July. In the country around

Spokane the mean annual temperature is 46° to 48°. It is 24° in January and 68° in July. Spokane has a record of 30° below zero; the highest recorded there in summer is 104° above. In the settled portion of Kittitas County the mean annual temperature is the same as Spokane County. The winters are cold but not severe, except now and then a cold snap of a few days' duration. The summers are short and at times hot. Ellensburg, Kittitas County, has a minimum record of 29° below zero and a maximum record of 97° above.

In the country about Wallawalla, and in fact all the southeast counties, the summers are hot and the winters mild, with little snowfall except in the mountains and only short periods of moderately cold weather. Only very rarely is it severe. Wallawalla has a minimum record of -17° and a maximum record of 113°. In Whitman, Yakima, and Klickitat counties the summer weather is hot, while the winters are colder than those of the Wallawalla country, with sometimes considerable snow. The mean annual temperature about Wallawalla and the lower Yakima Valley is 52° to 54°. It is 31° in January and 76° in July. In Klickitat County the mean annual temperature is from 48° in the west to 54° in the east. Some very hot days occur in summer. Lind, Adams County, has a record for the maximum of 115°, which is the highest ever recorded in the State. The locality about Lake Chelan and the valley of the Okanogan River have phenomenally mild winter weather. It is probably due to the configuration of the mountains and to the heat from the water of the lake, which is so deep that it never freezes over.

Western Washington and eastern Washington present marked contrasts in temperature, the difference lying in the greater extremes that occur in the latter division. The daily, monthly, and annual ranges are all much greater in the eastern division, making the climate much less equable. The winter and summer months differ greatly in the two divisions, while the spring and autumn months have greater similarity. To illustrate: At a place in eastern Washington the highest temperature in July might be 110°, while the minimum of the coldest day of the same month might be as low as 40°. At the same time in the coast region the highest temperature of the month might be 80° and the minimum of the coldest day 50°. In January in the eastern division the temperature might range between 30° below zero and 65°, while in the coast region it would range between 25° above zero and 60°. April and October are the months most nearly alike in the two sections, with an average temperature of 45° to 54° for April and 46° to 55° for October.

The hot days east of the mountains are not so oppressive as might appear from the height recorded by the thermometer. It is dry heat, and evaporation takes place with great rapidity, which has a decided effect in lowering the temperature experienced by the human body, the "sensible temperature," as it has been termed, being always several, and sometimes many degrees lower than that recorded by the thermometer.

There has been much popular misconception about the precipitation in Washington, many having an idea that the State is deluged with an almost incessant downpour of rain. The truth is that the annual rainfall of Puget Sound is not much greater than that of the Ohio Valley. While it is true that three-fourths of the rainfall occurs from November to May, making some months very wet, yet it is also a fact that these large monthly rainfalls are often exceeded in some of the Eastern States. It is also a mistake to suppose that the rainy days are constant throughout the wet season. Many successive days of rainfall give to the unaided mind an impression that they are almost ceaseless, but the records show many spells of fair skies, rainless weather, and even when it rains the rains are generally intermittent. The average number of days on which rain falls is 82 in the eastern division and 160 days in the western division.

Frosts.—Late frosts in spring and early frosts in autumn are common in the eastern division, but are not common in the Puget Sound and coast country. This is as would naturally be expected, the former division being dry and the latter moist. In the latter section March 21 may be taken as the average date of last killing frost in spring, and November 21 as that of the first killing frost in autumn. Killing frosts have occurred as late as May 10 and as early as October 15. East of the mountains severe frosts have occurred late in June and early in September, or even late in August. In the fruit-raising valleys of the Wenatchee, Yakima, and Wallawalla, however, frosts are not troublesome. This is probably due to the steep slope of the valleys making rapid air drainage and also to the heat accumulated in those narrow valleys by reflection of the sun's rays.

Prevailing winds.—The south to west winds, which are prevalent in winter, are warm winds, while north to east winds are cold winds. The opposite is true in summer. The southwest to northwest winds, which are the prevailing ones of summer, are cool, while north to northeast winds are hot in daytime, though cool at night. They are hot in summer because they blow from off the great northern plains, which at times in summer are greatly heated by insolation. On the contrary, in winter these plains have lost their heat by radiation and become intensely cold; consequently the winds blowing from them are cold. As a rule the westerly winds are due to areas of high barometric pressure off the coast, and, coming from the sea, they are warm in winter and cool in summer. The high specific heat of water causes the surface of the sea to be warmer in the cold weather than the land surface, while, on the contrary, the water surface has not become so greatly heated in warm weather as the land surface.

The dominant wind for the year over the Puget Sound basin is southerly; along the coast it is south to west. These are the rain-producing winds. The northerly and easterly winds are, for the most part, dry winds. In summer the winds are very moderate. In winter they are high only during the prevalence of cyclonic storms, at which times velocities of 25 to 45 miles per hour are reached in the Sound country, and velocities of 40 to 90 miles per hour sometimes prevail at exposed points along the coast. These are dangerous to ill-found, unseaworthy, or unskillfully handled shipping, but they are not destructive on land, except in blowing down considerable timber.

East of the Cascades the prevailing winds are from the southwest. Local topography in the Wenatchee and Yakima valleys make the direction northwest. Occasionally during summer there are periods when hot winds blow from the north and east over the plains of the eastern division. They are desiccating and injurious to crops, especially wheat at the filling period; so much so that the greatest dread of the wheat growers is "hot winds in June or July." The spells of hot winds are caused by barometric depressions over California moving northward into Idaho and eastern Washington, and are usually broken up by thunderstorms. These storms are of only moderate intensity in eastern Washington, occurring sometimes three or four in a

month, and are very light and infrequent in the western division, sometimes only two or three in a year, but generally about five—as often in winter as in summer. Hailstorms sometimes occur, but they are almost invariably light and do little damage except occasionally to fruit. "Dust storms," so called, are occasionally visitants in the Walla Walla, Snake River, and Yakima valleys. They are more disagreeable than injurious. The wind sometimes attains a velocity of 35 to 45 miles an hour. There is no authentic instance of a tornado ever having occurred in the State of Washington.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.^a

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Adams (<i>see</i> Colfax).....		Eastern		Lewis.....	Centralia.....	Western	941
Asotin (<i>see</i> Pomeroy).....		do.		Lincoln (<i>see</i> Spokane).....		Eastern	
Chehalis.....	Aberdeen.....	Western	937	Mason (<i>see</i> Aberdeen).....		Western	
Chelan.....	Lakeside.....	Eastern	933	Okanagan (<i>see</i> Lakeside).....		Eastern	
Chillum.....	Tatoosh.....	Western	930	Pacific (<i>see</i> Aberdeen).....		Western	
Clarke (<i>see</i> Centralia).....		do.		Pierce (<i>see</i> Olympia).....		do.	
Columbia (<i>see</i> Pomeroy).....		Eastern		San Juan.....	Olga.....	do.	931
Cowlitz (<i>see</i> Centralia).....		Western		Skagit (<i>see</i> Snohomish).....		do.	
Douglas.....	Waterville.....	Eastern	934	Skamania (<i>see</i> Centralia).....		do.	
Ferry (<i>see</i> Waterville).....		do.		Snohomish.....	Snohomish.....	do.	932
Franklin (<i>see</i> Moxee, North Yakima).....		do.		Spokane.....	Spokane.....	Eastern	935
Garfield.....	Pomeroy.....	do.	943	Stevens (<i>see</i> Spokane).....		do.	
Island (<i>see</i> Olga).....		Western		Thurston.....	Olympia.....	Western	938
Jefferson (<i>see</i> Aberdeen).....		do.		Wahkiakum (<i>see</i> Aberdeen).....		do.	
King.....	Seattle.....	do.	936	Walla Walla.....	Walla Walla.....	Eastern	944
Kitsap (<i>see</i> Seattle).....		do.		Whatecom (<i>see</i> Olga).....		Western	
Kittitas.....	Ellensburg.....	Eastern	939	Whitman.....	Colfax.....	Eastern	940
Klickitat.....	Lyle.....	do.	945	Yakima.....	Moxee, North Yakima.....	do.	942

STATE SUMMARY.

Station.	No.	Temperature.							Average number days with—	
		Mean annual.	Mean maximum.	Mean minimum.	Absolute maximum.	Date.	Absolute minimum.	Date.	Maximum above 90°.	Minimum below 32°.
		° F.	° F.	° F.	° F.		° F.			
Tatoosh Island.....	1	48	52	45	80	August, 1894.....	7	January, 1893.....	0	9
Olga.....	2	49	55	42	87	July, 1899.....	-3	do.....	0	21
Snohomish.....	3	51	59	42	97	June, 1903.....	2	January, 1902.....	5	43
Lakeside.....	4	49	59	40	103	August, 1898.....	-15	February, 1899.....	13	107
Waterville.....	5	44	56	32	103	July, 1899.....	-30	January, 1893.....	16	162
Spokane.....	6	38	73	24	104	August, 1898.....	-30	January, 1888.....	14	120
Seattle.....	7	52	59	45	96	June, 1903.....	3	January, 1893.....	1	21
Aberdeen.....	8	50	59	41	105	July, 1891.....	10	do.....	1	42
Olympia.....	9	50	60	42	99	July, 1902.....	-2	January, 1888.....	4	37
Ellensburg.....	10	46	58	35	97	August, 1893.....	-29	November, 1896.....	8	151
Colfax.....	11	48	59	36	105	July, 1901.....	-18	January, 1899.....	10	110
Centralia.....	12	51	61	41	102	August, 1903.....	6	January, 1893.....	6	39
Moxee Wells.....	13	50	63	36	108	August, 1897.....	-22	February, 1896.....	28	148
Pomeroy.....	14	53	61	44	108	August, 1901.....	-24	January, 1893.....	23	70
Walla Walla.....	15	53	63	44	113	August, 1898.....	-17	January, 1888.....	31	66
Lyle.....	16	50	59	40	104	August, 1901.....	-11	February, 1899.....	15	73

Station.	No.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Tatoosh Island.....	1	Dec. 9	Mar. 13	Nov. 1	Apr. 19	Inches. 93.9	Inches. 20.3	Inches. 8.5	Inches. 26.6	Inches. 38.5
Olga.....	2	Nov. 13	Mar. 21	Sept. 21	Apr. 11	30.7	7.0	2.8	9.7	11.2
Snohomish.....	3	Oct. 21	Apr. 21	do.	July 12	46.7	12.0	4.8	13.0	16.9
Lakeside.....	4	do.	Apr. 8	Oct. 3	Apr. 21	12.7	2.9	1.3	3.2	5.3
Waterville.....	5	Sept. 16	June 1	Aug. 26	June 25	13.3	3.5	1.6	2.9	5.2
Spokane.....	6	Oct. 12	Mar. 21	Sept. 7	June 8	18.3	4.1	2.7	4.7	6.8
Seattle.....	7	Nov. 22	do.	Oct. 23	May 10	37.0	8.8	2.9	11.1	14.2
Aberdeen.....	8	Nov. 1	Apr. 19	Sept. 25	May 6	88.7	20.2	5.8	27.0	35.7
Olympia.....	9	Nov. 5	Apr. 16	Sept. 21	May 14	55.1	11.7	3.0	15.8	24.6
Ellensburg.....	10	Sept. 20	May 23	Sept. 6	June 6	9.3	1.6	0.8	2.7	4.2
Colfax.....	11	Sept. 11	May 17	July 24	June 8	24.0	6.0	2.1	7.1	8.8
Centralia.....	12	Oct. 25	Apr. 30	Oct. 7	June 3	46.4	10.0	3.6	15.5	17.3
Moxee Wells.....	13	Sept. 21	May 23	Sept. 6	June 14	8.9	2.0	0.7	2.2	4.0
Pomeroy.....	14	Sept. 28	Apr. 26	do.	May 24	19.4	5.5	1.5	5.3	7.1
Walla Walla.....	15	Nov. 1	Apr. 6	Sept. 28	May 3	17.7	5.2	1.9	4.7	5.9
Lyle.....	16	Oct. 17	Apr. 19	Sept. 21	May 7	27.2	4.8	1.2	7.4	13.8

^a In the list of stations on page 118 the name Tacoma appears; the record for this station was inadvertently omitted from the text.

WASHINGTON.

Coast District: CLALLAM COUNTY. Station: TATOOSH ISLAND.

F. R. BEAHAN, Observer.

[Established by the Signal Service October, 1883. Latitude, 48° 23' N. Longitude, 124° 44' W. Elevation, 86 feet.]

Tatoosh Island is a rock, standing from 75 to 100 feet above the ocean, three-fourths of a mile directly west of Cape Flattery and at the mouth of the Straits of San Juan de Fuca. With a rolling surface, it covers an area of a little less than 17 acres. The sides are precipitous. There are no trees or buildings that in any way interfere with the exposure of the instruments. The station was first established in a small, one-story, four-room building erected by the Signal Service on the north-east corner of the island. In April, 1889, the station was closed. A record of temperature, precipitation, and weather was kept by the light-house keeper until August, 1891, when the station was reopened. The same instruments and exposures were used. In July, 1898, the station was moved to Neah Bay, 7 miles inland. In November, 1902, it was reopened in a new building erected by the Weather Bureau in the center of the island.

Tabulated data are from the following periods of observation: Temperature, thirteen and one-half years, October 1, 1883, to December 31, 1889, January 1, 1891, to July 12, 1898 (year 1890 not considered reliable); precipitation, full period of observation, fourteen and one-half years, October 1, 1883, to July 12, 1898; humidity, seven years; remainder of data is from twelve and one-half years, October 1, 1883, to April 30, 1889, and August 1, 1891, to July 12, 1898.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 43	° F. 47	° F. 60	° F. 40	° F. 19	° F. 48	° F. 36	In. 15.7	24	In. 1.9	In. 11.8	In. 0.2	In. 2.5	P. ct. 86	Grs. 2.83	P. ct. 85	Grs. 2.90	E.
January.....	41	44	57	38	7	45	36	13.2	22	8.5	16.4	3.1	4.9	87	2.55	84	2.57	E.
February.....	41	45	55	38	13	45	34	9.6	20	7.0	11.6	5.2	6.2	87	2.67	88	2.80	E.
Winter mean.....	42	45	.....	39	.....	.....	.....	38.5	66	17.4	30.8	8.5	.....	87	2.68	86	2.76	W.
March.....	44	48	64	40	24	49	39	8.6	19	6.2	12.3	0.9	0.3	85	2.60	81	2.67	E.
April.....	46	50	68	43	33	51	44	7.3	18	2.5	14.6	T.	T.	86	2.83	81	2.97	E.
May.....	50	55	78	47	35	54	48	4.4	15	3.4	4.1	0.0	0.0	87	3.31	83	3.50	SW.
Spring mean.....	47	51	.....	43	.....	.....	.....	20.3	52	12.1	31.0	0.9	.....	86	2.91	82	3.05	W.
June.....	54	58	75	50	43	55	52	4.1	14	1.8	3.3	0.0	0.0	88	3.94	80	4.17	SW.
July.....	56	60	78	52	45	58	54	2.0	8	T.	1.6	0.0	0.0	92	4.16	87	4.67	SW.
August.....	56	61	80	51	43	57	55	2.4	8	5.7	0.7	0.0	0.0	93	4.36	88	4.73	SW.
Summer mean.....	55	60	.....	51	.....	.....	.....	8.5	30	7.5	5.6	0.0	.....	92	4.15	87	4.52	SW.
September.....	54	58	71	50	40	56	52	5.8	13	5.3	11.5	0.0	0.0	88	3.94	89	3.88	E.
October.....	50	54	72	47	38	54	48	8.1	17	7.1	12.7	0.0	0.0	89	3.63	87	3.67	E.
November.....	46	49	60	41	25	49	40	12.7	20	8.6	13.7	0.3	T.	86	2.94	85	3.01	E.
Fall mean.....	50	54	.....	47	.....	.....	.....	26.6	50	21.0	37.9	0.3	.....	88	3.50	87	3.52	E.
Annual mean.....	53	52	80	45	7	.....	.....	93.9	198	58.0	114.3	9.7	6.2	88	3.31	85	3.46	E.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO JUNE 30, 1898.

Year.	Minimum below 32°.	Maximum 70° or above.	Year.	Minimum below 32°.	Maximum 70° or above.
1894	Jan. 5, 20, 23; Feb. 11, 17-21.	July 13; Aug. 23.	1897	Jan. 26, 27; Mar. 9, 10, 13, 19; Nov. 28, 29.	None.
1895	Jan. 3, 4; Dec. 16, 17.	May 15; June 27; July 9, 10, 29; Oct. 18.	1898	Jan. 24; Feb. 18.	May 3, 25; June 6.
1896	Jan. 1-3, 14-17, 24, 25; Feb. 9; Mar. 1-4, 29; Nov. 20, 21, 25-30.	July 21; Aug. 23; Mar. 11, 12.			

WASHINGTON.

Western Division: SAN JUAN COUNTY. Station: OLGA.

RICHARD C. WILLIS, Observer.

[Established by Signal Service in February, 1890. Latitude, 48° 36' 16.5" N. Longitude, 122° 38' 35.6" W. Elevation, 50 to 60 feet.]

This station is in a clearing near the little village of Olga, on Orcas Island, one of the San Juan archipelago. The island is diversified by hills and valleys, thickly timbered, except where it has been cleared. Some of the hills are quite high—Mount Constitution, 4 or 5 miles north of Olga, rising to a height of 2,428 feet.

The maximum and minimum thermometers (Weather Bureau) are exposed on a veranda on the north side of the dwelling house, and they are about 6 feet above the ground. The rain gage is in an open clearing near by. Its top is 3 feet above the ground.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.	41	46	58	37	22	45	39	4.9	15	7.0	1.8	0.8	4.5
January.	39	44	59	35	— 3	43	36	3.2	13	2.8	4.3	5.0	4.5
February.	40	46	63	36	0	46	34	3.1	12	3.0	2.1	3.8	8.0
Winter mean.	40	45		36				11.2	38	12.8	8.2	9.6	
March.	43	49	65	36	19	48	39	2.5	13	1.0	3.8	2.9	5.0
April.	47	55	72	39	31	49	45	2.4	11	1.4	5.0	0.2	1.5
May.	53	61	80	44	32	55	50	2.1	12	1.6	3.8	0.0	0.0
Spring mean.	48	55		40				7.0	36	4.0	12.6	3.1	
June.	57	66	83	48	38	59	55	1.5	11	1.1	2.3	0.0	0.0
July.	59	68	87	49	41	61	57	0.6	5	0.2	0.5	0.0	0.0
August.	59	68	84	50	40	62	55	0.7	4	0.2	0.1	0.0	0.0
Summer mean.	58	67		49				2.8	20	1.5	2.9	0.0	0.0
September.	55	64	79	48	37	57	50	1.9	9	1.6	2.8	0.0	0.0
October.	50	56	70	43	29	55	47	2.5	11	0.7	4.0	0.0	0.0
November.	44	48	64	38	14	49	36	5.3	17	3.9	6.2	1.6	1.5
Fall mean.	50	56		43				9.7	37	6.2	13.0	1.6	
Annual mean.	49	55	87	42	— 3			30.7	133	24.5	36.7	14.3	8.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 2-8, 20-23, 31; Feb. 1-3, 10, 16, 18-23; Mar. 2, 3, 13, 20-22; Apr. 15; Dec. 2, 3, 26-28.	None.	1899	Jan. 1-8; Feb. 2-6; Mar. 2, 21-23, 26; Apr. 5; Dec. 3, 15-17.	None.
1895	Jan. 2, 3, 18, 19, 24-26; Feb. 10; Mar. 14; Apr. 4, 5; Nov. 5; Dec. 15-17, 21, 28, 30.	Do.	1900	Jan. 25-31; Feb. 7, 8, 13-16, 25; Mar. 2; Nov. 4, 5, 11, 16-22; Dec. 28-31.	Do.
1896	Jan. 1-3, 12-17, 24, 25; Feb. 9, 10, 29; Mar. 1- 6, 16-18, 30, 31; Apr. 3, 29; May 7, 8; Nov. 16-30; Dec. 15-17.	Do.	1901	Jan. 1, 3, 4, 7-9, 17-19, 29-31; Feb. 1, 4-6, 9, 11, 12, 19-22; Mar. 5; Apr. 3; Dec. 11, 12, 14.	Do.
1897	Jan. 10, 14, 24-28; Feb. 12, 13, 20-22, 25; Mar. 2, 5-8, 10-14, 20, 21, 29, 30; Nov. 27-29; Dec. 3, 15, 16, 31.	Do.	1902	Jan. 10, 11, 15, 16, 20- 31; Feb. 1; Mar. 15; Dec. 7, 12, 16, 17.	Do.
1898	Jan. 8-11, 21-23; Feb. 2, 19; Mar. 14, 18, 25- 27, 31; Nov. 13, 19, 24, 25; Dec. 2, 5-12, 23, 30, 31.	Do.	1903	Jan. 25, 26; Feb. 1, 2, 11-16; Mar. 11-14; Oct. 16, 30; Nov. 17, 23; Dec. 4.	Do.

WASHINGTON.

Western Division: SNOHOMISH COUNTY. Station: SNOHOMISH.

T. F. THOMPSON, Observer.

[Established by Weather Bureau in February, 1894. Latitude, 47° 47' N. Longitude, 122° 5' W. Elevation, 50 feet.]

This station is at the corner of Cedar and Pearl streets, in the center of the residence section of the little city of Snohomish, which is located in the valley of Snohomish River. The valley is here but a short distance from tide water and but a few feet above sea level. It is a mile or more to hills on the north and south sides of the valley, which runs from east to west. The hills, as usual in this section, rise to 200 or 300 feet.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter, 4½ feet above the sod of a lawn in the observer's yard. The rain gage is near at hand, unobstructed by any object, and its top is 3 feet above the surface of the ground. The instruments are 20 feet or more from any building. Before a shelter was furnished (in November, 1901) the thermometers were upon an open veranda, with north-northwest exposure, 6 feet above the ground.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Great-est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December	41	46	63	35	16	43	37	6.3	17	7.4	3.7	2.0	3.0
January	39	44	59	34	2	43	36	5.0	17	5.4	7.2	6.0	5.0
February	41	48	72	35	8	45	36	5.6	16	3.0	6.4	2.5	9.0
Winter mean	40	46		35				16.9	50	15.8	17.3	10.5	
March	44	52	77	35	15	49	40	4.4	16	4.3	3.1	5.4	4.0
April	50	59	85	40	27	52	47	3.8	14	3.2	6.1	0.3	2.5
May	56	65	89	46	31	60	51	3.8	15	5.8	5.4	0.0	0.0
Spring mean	50	59		40				12.0	45	13.3	14.6	5.7	
June	60	70	97	49	38	65	55	2.6	10	1.4	2.5	0.0	0.0
July	63	75	92	51	36	70	59	1.2	4	1.1	1.2	0.0	0.0
August	63	75	91	50	37	66	60	1.0	3	0.3	5.8	0.0	0.0
Summer mean	62	73		50				4.8	17	2.8	9.5	0.0	
September	57	67	83	47	31	60	55	3.1	10	1.8	1.2	0.0	0.0
October	52	60	81	43	28	55	49	3.8	12	0.5	5.4	0.0	0.0
November	44	50	66	38	7	51	38	6.1	19	2.6	8.9	1.6	9.5
Fall mean	51	59		43				13.0	41	4.9	15.5	1.6	
Annual mean	51	59	97	42	2			46.7	153	36.8	56.9	17.8	9.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD FEBRUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Feb. 1-3, 10-12, 16-24; Mar. 4, 20-24; Apr. 16, 22, 23; Nov. 1, 3-5, 10, 11, 13, 15-17, 20-25, 27-30; Dec. 1-4, 6, 7, 13, 15, 16-21.	None.	1899	Jan. 1-9, 31; Feb. 1-7, 10, 28; Mar. 14-17, 25; Apr. 12; Oct. 14; Dec. 2, 3, 15-17.	August 16.
1895	Jan. 1-4, 7, 8, 14, 18-21, 25-29; Feb. 7, 10-14; Mar. 3-9, 13, 14, 17, 24; Apr. 4, 5; Sept. 21; Oct. 16, 19-22, 27-29; Nov. 3-8, 22-26; Dec. 4, 8, 15-21, 23, 28-31.	Do.	1900	Jan. 3, 14, 19, 20, 23-28; Feb. 3, 6, 11-16; Mar. 1, 13, 15, 27; Apr. 8, 9, 26; Nov. 3-5, 9, 10, 17-21, 26; Dec. 10, 21, 27-31.	None.
1896	Jan. 1-4, 11, 12-16, 24; Feb. 3, 4, 10, 11, 17, 29; Mar. 1-6, 13-18, 22, 26, 28-31; Apr. 1-4, 6, 9, 16, 17; Nov. 6, 17, 19-30; Dec. 1, 16, 26.	June 27.	1901	Jan. 1-11, 15-19, 25, 30, 31; Feb. 1-12, 17, 19, 20-22; Mar. 5, 19-21, 24; Apr. 7, 12-16; May 6; Nov. 10, 17; Dec. 4, 10-14, 17-20, 28, 29.	Do.
1897	Jan. 3, 4, 10, 12, 14, 15, 25-28; Feb. 12, 13, 17, 19, 20, 22, 26; Mar. 2-4, 6-8, 10-14, 20-22, 29, 30; Nov. 27; Dec. 1, 13, 22.	None.	1902	Jan. 9-11, 14, 19-31; Feb. 1, 21; Mar. 1, 4, 5, 14, 27-29; Nov. 4, 5, 19, 20; Dec. 6, 9-11, 13-22.	July 19.
1898	Jan. 9-11, 21, 23-26; Feb. 1; Mar. 9, 14, 17, 20, 21; Apr. 3; Oct. 6; Nov. 12, 13, 20, 23, 24; Dec. 5-13, 22, 23, 28-31.	July 30, 31; Aug. 1.	1903	Jan. 5, 6, 11-16, 24-26, 30, 31; Feb. 1-19, 21-23, 27; Mar. 1-7, 10-22; Apr. 9, 10; Nov. 11, 12, 16-18, 23; Dec. 3-10, 24, 25, 30.	June 8.

WASHINGTON.

Eastern Division: CHELAN COUNTY. Station: LAKESIDE.

CHARLES JOHNSON, Observer.

[Established by Signal Service in May, 1891. Latitude, 47° 50' N. Longitude, 120° 01' W. Elevation, 1,001 feet.]

This station is in the western part of the little village of Lakeside, about 1 mile above the lake's outlet, about 25 rods from its bank, and probably 50 or 60 feet above it. A narrow bench, at this point not more than half a mile in width, extends along the shore of the lake. Back of this the mountains rise very steeply to a height of two to three thousand feet above the lake.

The instruments are located in an orchard, 100 feet west from a house, and have an open exposure. The maximum and minimum thermometers are in a standard cotton-region shelter, 5 feet above cultivated soil. The rain gage is 10 feet distant, its top 3 feet above the surface of the ground. It is not overshadowed in any way. Previous to receipt of shelter in May, 1900, the thermometers were attached to the north side of a house, a two-story frame dwelling.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number days of with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	30	35	57	24	4	39	24	2.3	8	2.2	3.4	13.6	13.5
January.....	26	32	52	21	-7	33	22	1.6	8	2.4	2.0	10.8	7.0
February.....	30	38	60	24	-15	35	21	1.4	6	0.3	2.8	8.1	8.5
Winter mean.....	29	35		23				5.3	22	4.9	8.2	32.5	
March.....	40	48	68	31		45	33	0.7	4	0.3	0.8	2.0	3.0
April.....	50	61	80	40	28	54	47	0.9	4	0.7	0.5	0.0	0.0
May.....	58	70	91	48	34	62	52	1.3	6	0.0	1.3	0.0	0.0
Spring mean.....	49	60		40				2.9	14	1.6	2.6	2.0	
June.....	65	77	98	53	36	70	61	0.7	4	T.	1.2	0.0	0.0
July.....	72	84	100	60	46	75	68	0.3	1	T.	0.9	0.0	0.0
August.....	73	85	103	60	44	76	65	0.3	3	0.0	0.2	0.0	0.0
Summer mean.....	70	82		58				1.3	8	T.	2.3	0.0	
September.....	61	72	90	49	34	66	56	0.5	3	0.8	0.1	0.0	0.0
October.....	51	61	77	41	25	56	47	0.7	3	0.0	0.7	0.0	0.0
November.....	37	43	63	31	-3	45	28	2.0	9	0.5	2.9	6.4	6.0
Fall mean.....	50	59		40				3.2	15	1.3	3.7	6.4	
Annual mean.....	49	59	103	40	-15			12.7	59	7.8	16.8	40.9	13.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 2-11, 19-25; Feb. 1-4, 10-13, 15, 16-24; Dec. 2, 3, 6, 14-17, 23, 26-31.	July 23; Aug. 2, 20, 23, 24.	1899	Jan. 1-9, 11-13, 23, 31; Feb. 1-10, 21-25; Dec. 15-18, 27.	July 14, 15.
1895	Jan. 1-9, 13-16, 18, 24-31; Feb. 1-3, 8-15; Mar. 12, 13; Nov. 3, 4, 22; Dec. 15-22, 29, 30.	June 28; July 12, 23; Aug. 2.	1900	Jan. 25-30; Feb. 7-9, 13-17; Nov. 17-23; Dec. 30, 31.	July 20-23, 30.
1896	Jan. 1-5, 10-18, 21-24, 29; Feb. 2, 5-7, 9-11, 29; Mar. 1-5; Nov. 17-30; Dec. 1.	June 28.	1901	Jan. 3-11; Feb. 3-6, 8-12, 17, 19-21; Dec. 11-14, 19.	Aug. 5, 23.
1897	Jan. 10, 12-17, 24-28; Feb. 12-14, 16-22, 24-26; Mar. 2, 3, 6, 7, 10-13, 19-21; Nov. 26-30; Dec. 1-4, 11, 14-25, 29-31.	July 11; Aug. 8, 16, 17, 19, 21, 23.	1902	Jan. 23-31; Feb. 1-5; Nov. 28; Dec. 4-6, 9, 10, 15-21, 23, 27-30.	Aug. 5-8, 10, 11.
1898	Jan. 1-4, 6-11, 13-29; Feb. 1-3, 18; Mar. 21, 24; Dec. 4-16, 20-24, 29-31.	July 11, 12, 31; Aug. 2, 6-9, 11.	1903	Jan. 2, 6-11, 13-15, 17-19, 25-31; Feb. 1-8, 10-19, 24-28; Mar. 1, 2, 4, 5, 11-13; Nov. 15-18; Dec. 3, 9-31.	June 7, 12; July 20; Aug. 8, 10, 18.

WASHINGTON.

Eastern Division: DOUGLAS COUNTY. Station: WATERVILLE.

R. W. STARR, Observer.

[Established by Signal Service in March, 1890. Latitude, 47° 40' N. Longitude, 120° 05' W. Elevation, 2,640 feet.]

This station is in the eastern part of the residence portion of the town of Waterville, at a point where the land slopes gently to the northwest. The general contour of the surrounding country is that of a gently undulating treeless plateau, which at this place is about 2,000 feet above the level of the Columbia River, only 8 miles distant. To the south about 6 miles are the Badger Mountains, which rise about 3,500 feet above the Columbia.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter, which is on the north side of a 1½ story frame dwelling, about 4 feet above the ground. The rain gage is in an open spot in the garden, about 25 feet from the nearest building; the top of the gage is 3 feet above the ground.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Months.	Temperature.							Precipitation.					Snow.	
	Mean.	Mean of the maxi- ma.	Absolu- te maxi- mum.	Mean of the mini- ma.	Absolu- te mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	34	57	18	-12	37	19	2.1	6	1.0	4.1	13.7	16.0	
January.....	22	30	66	13	-30	29	17	1.6	6	0.1	2.9	14.1	9.0	
February.....	25	35	58	16	-25	30	18	1.5	5	1.4	2.7	12.1	10.0	
Winter mean.....	24	33		16				5.2	17	2.5	9.7	39.9		
March.....	34	44	64	24	-10	41	26	0.8	3	0.1	1.6	4.8	9.0	
April.....	45	56	81	32	17	49	41	1.1	3	0.1	0.5	0.8	1.0	
May.....	54	67	96	39	16	57	48	1.6	5	0.7	1.2	0.1	1.5	
Spring mean.....	44	56		32				3.5	11	0.9	3.3	5.7		
June.....	59	75	101	44	30	66	56	0.9	3	1.5	0.6	0.0	0.0	
July.....	66	84	103	49	33	69	61	0.3	2	0.1	0.8	0.0	0.0	
August.....	67	83	102	50	29	72	61	0.5	2	0.9	0.0	0.0	0.0	
Summer mean.....	64	81		48				1.7	7	2.5	1.4	0.0		
September.....	56	69	93	41	25	60	51	0.5	3	0.8	0.4	0.0	0.0	
October.....	45	58	78	34	12	53	42	0.7	2	T. 1.6	1.0	0.4	1.0	
November.....	33	40	63	23	-21	40	23	1.7	7		2.8	11.7	15.0	
Fall mean.....	45	56		33				2.9	12	2.4	4.2	12.1		
Annual mean.....	44	56	103	32	-30			13.3	47	8.3	18.6	57.7	16.0	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 3-9, 11, 24-28, 31; Feb. 1, 2, 10, 12-14, 19-24; Dec. 7, 27-30.	July 23; Aug. 20, 23.	1899	Jan. 1-9, 14; Feb. 1-9; Dec. 14-19.	July 14-16.
1895	Jan. 1-8, 15, 20, 24, 25, 27-30; Feb. 2, 10-12; Mar. 13, 14; Dec. 17, 18, 22, 29.	July 23; Aug. 2.	1900	Jan. 29-31; Feb. 5, 8, 9, 14-16; Nov. 17-23; Dec. 31.	July 19-23, 31.
1896	Jan. 2-4, 12-18, 24; Feb. 3, 10; Mar. 1-5; Nov. 17, 20, 23-30; Dec. 2, 3.	June 27, 28; July 3, 4, 6-8, 11, 14, 15, 17, 18.	1901	Jan. 8-12; Feb. 5-7, 9-12, 19-21; Dec. 12, 13, 16, 17, 19.	Aug. 6, 14, 15, 21-24.
1897	Jan. 3, 11, 14-17, 25-31; Feb. 9, 13-15, 17, 18, 21-24, 26; Mar. 2, 3, 5, 7, 8, 11-15, 21, 22; Nov. 20, 25, 28, 30; Dec. 1-4, 15-20, 24, 26, 30.	May 29; July 11; Aug. 7, 8, 16-23.	1902	Jan. 20-31; Feb. 1-4; Nov. 7; Dec. 6, 7, 10, 14, 19, 20, 23.	July 19, 20; Aug. 6, 7.
1898	Jan. 2-4, 6, 9-15, 18, 23-30; Feb. 2; Mar. 22, 23, 25, 26; Nov. 25, 26; Dec. 5-17, 23, 24, 30, 31.	July 29, 30; Aug. 1-3, 7, 8, 10, 11, 25.	1903	Jan. 10, 11, 19, 20, 25, 26, 28-31; Feb. 2-8, 11-13; Mar. 1, 5, 9, 12-14; Nov. 16, 17, 23; Dec. 20, 24.	June 8, 10, 11; July 20, 21; Aug. 18.

WASHINGTON.

Eastern District: SPOKANE COUNTY. Station: SPOKANE.

CHARLES STEWART, Observer.

[Established February, 1881. Latitude, 47° 40' N. Longitude, 117° 25' W. Elevation, 1,881 feet.]

The present office is located on the sixth floor of the Empire State Building, 905 Riverside avenue, in the business portion of the town. The thermometers and the thermograph are exposed on the roof of the building in a standard instrument shelter at an elevation of 11 feet above the roof and 101 feet above the ground. The rain and snow gages are on the roof, the tops of the gages being 4 feet above the roof and 94 feet above the ground. The anemometer and wind vane support is on the roof, with the anemometer cups at an elevation of 20 feet above the roof and 110 feet above the ground and the wind vane 22 feet above the roof and 112 feet above the ground. The sunshine recorder is located on top of the instrument shelter.

Spokane is located by the falls of the Spokane River, in eastern Washington, between the Rocky and Cascade mountains, at an elevation of about 1,900 feet above sea level.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; humidity, fifteen years; sunshine, seven years. Remainder of data is from the full period of observation, twenty-three years, February 1, 1881, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.								
December.....	32	37	57	26	-19	37	15	2.4	15	0.0	3.5	10.8	8.9	87	1.54	81	1.55	47	18	SW.	
January.....	26	33	55	20	-30	36	16	2.4	14	1.4	4.5	13.0	8.0	88	1.30	80	1.43	60	22	S.	
February.....	30	33	59	22	-23	39	18	2.0	12	1.9	2.2	9.8	7.7	85	1.44	69	1.70	59	35	SW.	
Winter mean.....	29	36	57	23	-24	37	16	6.8	41	4.2	10.2	33.6	8.9	87	1.43	77	1.68	69	25	SW.	
March.....	40	48	74	31	-10	47	33	1.4	10	0.9	1.0	3.1	4.0	81	1.71	52	1.78	194	52	SW.	
April.....	43	59	86	37	22	53	44	1.3	10	0.8	2.8	0.1	1.2	75	1.98	40	1.87	235	59	SW.	
May.....	59	68	95	45	29	62	50	1.4	10	1.6	1.5	T.	T.	75	2.05	39	2.48	286	61	SW.	
Spring mean.....	48	58	86	37	24	54	46	4.1	30	3.3	5.3	3.2	4.0	77	2.11	44	2.04	238	57	SW.	
June.....	62	74	96	50	34	67	58	1.5	9	1.2	1.2	0.0	T.	70	3.06	32	2.72	330	69	SW.	
July.....	69	83	102	55	41	73	65	0.7	5	0.4	0.9	0.0	0.0	64	3.21	25	2.73	372	77	SW.	
August.....	68	83	104	54	33	73	62	0.5	3	1.0	0.1	0.0	0.0	64	3.10	25	2.65	30	72	SW.	
Summer mean.....	66	80	98	53	43	73	62	2.7	17	2.6	2.2	0.0	0.0	66	3.12	27	2.70	341	73	SW.	
September.....	58	71	98	43	26	64	52	1.0	7	0.5	0.8	0.0	0.0	74	2.81	35	2.62	226	60	SW.	
October.....	48	59	86	33	12	54	43	1.4	9	0.4	4.8	0.1	T.	82	2.34	49	2.46	160	48	NE.	
November.....	37	44	70	30	-13	45	31	2.3	13	2.0	2.4	5.7	6.5	86	1.96	74	2.19	47	49	S.	
Fall mean.....	48	58	86	33	12	54	43	4.7	29	2.9	8.0	5.8	4.0	81	2.37	53	2.42	144	52	SW.	
Annual mean.....	48	58	104	38	-30	54	46	18.3	117	13.0	25.7	42.6	8.9	78	2.26	50	2.21	198	52	SW.	

* Also SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 95° or above.	Year.	Minimum below 0°.	Maximum 95° or above.
1894	Jan. 8; Feb. 21, 22....	July 23; Aug. 2, 20-23.	1899	Jan. 3-7; Feb. 3-6....	July 15-17.
1895	None.....	Aug. 2.	1900	Nov. 21, 22.....	July 20-24, 30, 31.
1896	Nov. 27-29.....	June 28; July 4, 5, 9, 15, 16.	1901	None.....	July 30; Aug. 5, 7, 14-16, 24.
1897	None.....	May 29; July 11; Aug. 8, 18-23.	1902	Jan. 24-28; Feb. 1.....	None.
1898	Dec. 13.....	July 11, 31; Aug. 2, 6-11, 25.	1903	None.....	July 21, 22; Aug. 18.

WASHINGTON.

Coast Districts, Puget Sound: KING COUNTY. Station: SEATTLE.

GEORGE N. SALISBURY, Section Director.

[Established as a voluntary station in August, 1890; established as regular Weather Bureau station May 1, 1903. Latitude, 47° 38' N. Longitude, 122° 20' W. Elevation, 46 feet.]

The station is located in the heart of the business district in a general office building which is 7 stories in height and 46 feet above mean sea level at its base. The instruments are exposed above a flat tar and gravel roof.

Seattle is built upon three ridges and the intervening valleys that extend between Elliott Bay, an arm of Puget Sound, and Lake Washington, a large body of fresh water, 2 to 4 miles east. The general elevation of the city thus varies from sea level to about 300 to 425 feet above.

The building on the roof of which the instruments are located is considerably higher than any surrounding buildings. All instruments are of standard Weather Bureau pattern. The thermometers are 10 feet above the roof, 114 feet above the ground, and 160 feet above sea level. The rain gage is 3.5 feet above the roof, 107 feet above the ground, and 153 feet above sea level. The anemometer, located on the summit of a steel tower, is 151 feet above the ground. Prior to January 1, 1902, it was 30 feet lower.

The sunshine record is from nine years, December, 1894, to December, 1903. Remainder of tabulated data is from full period of observation, thirteen and one-half years, August 1, 1890, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	43	47	62	38	26	46	39	5.9	19	4.1	8.8	1.9	5.0	87	2.57	82	2.70	47	18	SE.
January.....	41	45	62	36	3	44	39	4.3	19	2.0	5.2	7.7	9.2	88	2.42	81	2.48	65	23	SE.
February.....	42	47	67	36	4	46	35	4.0	18	6.0	8.1	4.7	4.0	85	2.42	73	2.49	111	39	SE.
Winter mean.....	42	46	.....	37	.....	.....	.....	14.2	56	12.1	22.1	14.3	.....	87	2.47	79	2.56	74	27	SE.
March.....	45	52	81	38	20	50	40	3.5	16	1.4	4.2	2.3	5.2	85	2.51	65	2.47	170	46	S.
April.....	50	58	85	42	32	52	47	3.0	15	1.5	2.2	0.2	1.0	84	2.77	58	2.72	207	50	SE.
May.....	55	64	92	47	37	58	51	2.3	15	0.7	1.9	0.0	0.0	85	3.23	58	3.33	230	49	SE.
Spring mean.....	50	58	.....	42	.....	.....	.....	8.8	46	3.6	8.3	2.5	.....	85	2.84	60	2.84	202	48	SE.
June.....	60	69	96	51	41	62	57	1.6	11	2.1	1.7	0.0	0.0	83	3.63	55	3.85	247	52	SE.
July.....	64	73	91	54	46	67	62	0.8	5	0.2	2.0	0.0	0.0	84	4.07	51	4.34	299	62	NW.
August.....	64	74	92	55	46	68	61	0.5	1	0.2	0.5	0.0	0.0	87	4.36	54	4.31	254	57	W.
Summer mean.....	63	72	.....	53	.....	.....	.....	2.9	20	2.5	4.2	0.0	.....	85	4.02	53	4.17	267	57	S.
September.....	58	66	87	51	36	62	56	2.1	10	2.9	2.2	0.0	0.0	88	3.98	63	4.14	182	48	SE.
October.....	52	58	81	46	31	57	48	2.7	12	4.7	2.7	0.0	0.0	90	3.42	73	3.54	118	35	SE.
November.....	46	50	68	41	15	52	38	6.3	19	3.5	6.3	2.5	6.0	88	2.80	79	2.90	43	16	SE.
Fall mean.....	52	58	.....	46	.....	.....	.....	11.1	41	11.1	11.2	2.5	.....	89	3.40	72	3.53	115	33	SE.
Annual mean.....	52	59	96	45	3	.....	.....	37.0	163	29.3	45.8	19.3	9.2	86	3.18	66	3.27	164	41	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 3-6, 8, 21-24, 31; Feb. 1-3, 10, 11, 19-23; Mar. 2, 3, 18, 21, 22; Oct. 23; Nov. 16; Dec. 1-4, 16, 25, 27-29.	None.	1898	Jan. 10, 22-26; Mar. 22, 26; Apr. 3; Nov. 25; Dec. 5-7, 10-13, 23, 30, 31.	July 31; Aug. 1, 5.
1895	Jan. 3, 25-29; Feb. 14; Mar. 3, 5, 13, 14; Nov. 5, 6, 23; Dec. 17, 18, 28, 29.	June 27	1899	Jan. 2-7; Feb. 1-7, 11; Mar. 14, 26; Dec. 16, 19, 28.	July 26.
1896	Jan. 1-3, 11-13, 15-17; Feb. 10, 29; Mar. 1-4, 30, 31; Nov. 17, 19, 20, 24-30; Dec. 16.	June 26.	1900	Jan. 28, 29, 31; Feb. 12-17; Nov. 18-21; Dec. 28, 30, 31.	None.
1897	Jan. 10, 14, 15, 25-28; Feb. 13; Mar. 10-13, 21, 29, 30; Nov. 28; Dec. 3, 15, 16, 18, 23, 30.	May 28.	1901	Jan. 1, 4, 9, 10, 30, 31; Feb. 6, 7, 9, 11, 21; Dec. 11-13, 20, 29.	Do.
			1902	Jan. 12, 23-30; Feb. 1; Mar. 29; Dec. 17, 18.	July 19.
			1903	Jan. 15, 16; Feb. 1-3, 5, 6, 11-18; Mar. 1, 4, 5, 12, 13, 18, 19.	June 8.

WASHINGTON.

Western Division: CHEHALIS COUNTY. Station: ABERDEEN.

FRED. H. ROBINSON, Observer.

[Established by Signal Service January, 1891. Latitude, 46° 57' N. Longitude, 123° 45' W. Elevation, 162 feet.]

This station is located on a hill in the northern part of the residence section of the city of Aberdeen. The hill has been cleared off and is now well settled. The yard where the instruments are located is on the slope of the hill some distance below the summit, which is probably 180 to 200 feet above tide water. The greater part of Aberdeen is in a valley at the mouth of the Chehalis and Wishka rivers, as they empty into Gray's Harbor, a bay of the Pacific Ocean. Prior to October 6, 1900, the station was in the lower part of the city at an elevation of 10 feet above high tide.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter 4½ feet above ground, 20 feet north of a one and a half story frame dwelling. The rain gage is 20 feet north of the house and somewhat west; the top is 3 feet above the ground.

The monthly mean temperature has been obtained from the sum of the maximum and minimum divided by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	Average depth.	Greatest depth in 24 hours.
December.....	41	47	60	35	20	44	38	14.7	21	10.9	19.0	0.5	2.0
January.....	40	46	61	33	10	43	37	10.6	20	5.8	6.8	6.3	11.0
February.....	41	48	66	33	13	46	36	10.4	19	14.4	22.4	7.4	16.0
Winter mean.....	41	47	.....	34	.....	.....	.....	35.7	60	31.1	48.2	14.2	.....
March.....	44	53	75	34	22	48	40	7.9	19	4.4	11.0	1.0	1.5
April.....	48	57	87	38	28	51	45	7.7	17	4.9	5.1	T.	0.2
May.....	53	63	91	43	29	57	50	4.6	15	3.4	4.4	0.0	0.0
Spring mean.....	48	58	.....	38	.....	.....	.....	20.2	51	12.7	20.5	1.0	.....
June.....	57	67	100	48	34	61	52	3.7	13	3.4	3.1	0.0	0.0
July.....	60	71	105	50	37	64	56	1.0	5	1.0	1.3	0.0	0.0
August.....	62	73	111	51	40	64	60	1.1	5	0.6	0.4	0.0	0.0
Summer mean.....	60	70	.....	50	.....	.....	.....	5.8	23	5.0	4.8	0.0	.....
September.....	58	68	87	47	30	61	54	5.0	10	5.0	5.1	0.0	0.0
October.....	52	61	85	43	29	56	49	6.7	14	4.8	6.2	0.0	0.0
November.....	45	51	68	38	22	50	42	15.3	21	10.9	15.2	0.5	3.2
Fall mean.....	52	60	.....	43	.....	.....	.....	27.0	45	21.6	26.5	0.5	.....
Annual mean.....	50	59	105	41	10	.....	.....	88.7	79	70.4	100.0	15.7	16.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD, JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 2-6, 8, 19, 20, 30, 31; Feb. 1, 4, 8, 10, 11, 16-23; Mar. 1-5, 13, 16, 19; Apr. 14; May 1; Nov. 14, 15; Dec. 1-3, 6, 8, 14-19, 22-29.	July 13, 18; Aug. 26, 27.	1899	Jan. 2-5, 21, 22, 31; Feb. 1-7, 9-11, 27; Mar. 1, 2, 9, 10, 12-14, 16, 17, 20-26, 30; Apr. 12, 13, 16, 21, 22; Oct. 10, 11, 13, 14; Dec. 2, 14-18, 18, 19, 26-28.	July 26.
1895	Jan. 1-6, 13-24, 27-31; Feb. 10-12; Mar. 3, 6, 9-13, 16, 22, 23; Apr. 2-5; Nov. 3-6, 21-24; Dec. 14-17, 20, 21, 27-31.	May 11; June 26; July 8-10.	1900	Jan. 19-21, 23-31; Feb. 6, 7, 11-16; Mar. 1, 2; Apr. 7-9, 22, 25, 26; Nov. 4, 18-22; Dec. 28-31.	August missing.
1896	Jan. 1-3, 10-16, 22, 23; Feb. 2, 8-10, 16, 28, 29; Mar. 1-5, 14-17, 20, 25, 29-31; Apr. 1-3, 14; Sept. 8, 26-28; Oct., Nov., and Dec. data are missing.	June 25; July 19.	1901	Jan. 1-10, 15, 18, 20-25, 28-31; Feb. 1-14, 16-22, 24; Mar. data not used; Apr. minimum out of order; May 3, 5, 6; Dec. 11-13, 15, 17, 20, 29.	None.
1897	Jan. data missing; Feb. 20-22, 24, 26; Mar. 6, 7, 9-12, 19-21, 28, 29; Nov. 6, 14, 27, 28; Dec. 2, 3, 15, 17-19.	May 27; Aug. 3.	1902	Jan. 9, 10, 12, 15, 21-31; Feb. 1, 2; Mar. 2, 3, 13, 14, 19, 23, 24, 28-30; Apr. 8, 10, 12, 23; Sept. 25; Nov. 5, 6, 8, 9, 30; Dec. 3-8, 11, 15-17, 21, 23-26.	Aug. 6, 9.
1898	Jan. 7-10, 20-28; Feb. 15, 16, 18-20; Mar. 4, 6-10, 12-18, 20-26, 29; Apr. 1, 2, 17; Nov. 11, 12, 19, 20, 24, 25; Dec. 1, 2, 4-14, 19, 20, 28-30.	July 31; Aug. 5, 23.	1903	Jan. data missing; Feb. 2-5, 10-24, 26, 27; Mar. 1-22, 31; Apr. 11-22; Nov. 10, 12, 13, 15-17; Dec. 2, 3, 5, 6, 25, 30, 31.	June 6, 7.

WASHINGTON.

Western Division: THURSTON COUNTY. Station: OLYMPIA.

M. O'CONNOR, Observer.

[Established as a United States Signal Service station in August, 1877; discontinued in September, 1895, and established as a voluntary station by the Weather Bureau in December, 1895. Latitude, 47° 3' N. Longitude, 122° 54' W. Elevation, 17 feet.]

This station is on Main street in the business section of Olympia, one-fourth of a mile from the shore of the Sound. Olympia is a small city built on a slope rising gently from the shore of Puget Sound. At the place where the instruments are located the surface is 17 feet above mean high tide. There is a rolling prairie to the south and heavy timber to the northwest on the hills 2 miles distant.

The location of the United States Weather Bureau station was in the Chilberg Block, with elevation of thermometers 56 feet and rain gage 51 feet above ground. In the present location the maximum and minimum thermometers are in a standard cotton-region shelter on the roof of a building 18 feet above the ground. The top of the rain gage is 3 feet above the roof.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.								Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	41	47	64	37	8	45	33	9.8	19	4.1	11.4	0.8	2.0
January.....	39	45	60	36	- 2	43	32	7.9	22	4.0	6.0	7.3	15.0
February.....	40	49	63	36	2	46	31	6.9	18	1.4	15.6	1.4	5.0
Winter mean.....	40	47		36				24.6	59	9.5	33.0	9.5	
March.....	44	53	75	35	14	50	40	5.0	16	3.9	14.4	0.5	
April.....	49	60	85	38	25	53	45	4.0	13	1.9	2.1	0.0	0.0
May.....	55	66	93	44	30	58	51	2.7	14	2.4	4.7	0.0	0.0
Spring mean.....	49	60		39				11.7	43	8.2	21.2	0.5	
June.....	59	66	96	47	33	62	55	1.7	9	1.3	0.4	0.0	0.0
July.....	62	78	99	48	37	66	60	0.7	3	0.0	2.6	0.0	0.0
August.....	63	78	99	50	38	67	60	0.6	4	2.0	2.1	0.0	0.0
Summer mean.....	61	74		48				3.0	16	3.3	5.1	0.0	
September.....	57	69	88	46	32	61	54	2.8	9	3.5	2.4	0.0	0.0
October.....	50	61	81	43	23	56	47	4.5	15	4.3	6.2	0.0	0.0
November.....	44	51	69	39	4	50	33	8.5	21	4.8	5.5	T.	T.
Fall mean.....	50	60		43				15.8	45	12.6	14.1	T.	
Annual mean.....	50	60	99	42	- 2			55.1	163	33.6	73.4	10.0	15.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Dates missing from January to April, inclusive; May 2, 9, 10; Oct. 18, 19; Nov. 15-17; Dec. 1, 3, 4, 7, 15, 17-20, 28-31.	May 25; June 2; July 12, 13; Aug. 2.	1899	Jan. 1-6; Feb. 1-7, 11; Mar. 17, 18, 22, 23, 25, 26; Apr. 5, 13, 22, 23, 28; May 14; Oct. 11, 13, 14; Dec. 4, 10, 19.	July 14, 26-28.
1895	Jan. 2-8, 17, 20-23, 25-30; Feb. 6, 7, 10-14, 28; Mar. 3-10, 12, 14, 17, 31; Apr. 5, 14, 17, 26; Sept. 21; no data for Oct. and Nov.; Dec. 16-19, 28; 30.	June 27; July 9-11.	1900	Jan. 3, 20, 21, 25-29, 31; Feb. 7, 11-17; Mar. 1, 2, 14; Apr. 8-10, 26, 27; Sept. 26; Nov. 10, 11, 18-20, 22; Dec. 22, 30, 31.	June 12, 13; July 20.
1896	Jan. 1, 2, 3, 10-17, 24, 25; Feb. 6, 10, 18-20, 29; Mar. 1-5, 15-18, 21, 22, 26, 31; Apr. 1, 3, 4, 16, 17, 19, 20; Nov. 5, 6, 16, 19-30; Dec. 16, 29.	June 25, 26; July 3, 14, 15, 17, 18; Aug. 12, 13, 22.	1901	Jan. 1, 4, 8-10, 18, 23-25, 30, 31; Feb. 1, 3-9, 11, 12, 18, 19, 21, 22; Mar. 5, 14, 15, 19, 24; Apr. 7, 8, 13, 15, 16, 24, 25, 27; May 3, 5, 6; Dec. 7, 11-15, 20, 29, 31.	June 17, 18; Aug. 4-6, 14, 15.
1897	Jan. 1, 10, 12, 14-17, 25-28; Feb. 11, 17-22, 25, 26; Mar. 6, 7, 8-14, 18-22, 29, 30; Apr. 27; Sept. 28; Oct. 14; Nov. 3, 19, 28, 29; Dec. 3, 15, 23.	May 28, 29; July 10; Aug. 3, 4, 6, 7, 14-16, 22.	1902	Jan. 9-12, 16, 20-31; Feb. 1-3, 22; Mar. 2, 19, 28-30; Apr. 10; Nov. 5, 6, 20; Dec. 6, 10, 18, 21, 28.	May 26; July 18, 19; Aug. 6, 7, 9, 10.
1898	Jan. 1, 10-12, 22-26, 28; Feb. 1, 2, 19, 26; Mar. 5, 6, 8, 10, 13, 16-18, 21, 22, 25, 26; Apr. 2-4, 19, 28; Nov. 14, 25; Dec. 6-13, 15, 30, 31.	May 25; June 6, 7; July 29-31; Aug. 1, 4, 5, 23.	1903	Jan. 7, 13, 16, 26, 28; Feb. 1-3, 5, 6, 10-20, 26, 28; Mar. 1, 2, 4, 5, 8, 13, 16-24, 28; Apr. 1, 9-12, 17, 19; Nov. 10, 17, 18; Dec. 2-6, 13, 31.	June 7, 8; July 20; Aug. 17.

WASHINGTON.

Eastern Division: KITTITAS COUNTY. Station: ELLENSBURG.

S. W. BARNES, Observer.

[Established by Weather Bureau January, 1892. Latitude, 46° 59' 55" N. Longitude, 120° 32' 25" W. Elevation, 1,571 feet.]

This station is in the northern part of the residence district of the small city of Ellensburg, which is located in the gently rolling valley of the Yakima River, near the mouths of Kittitas and Manashtash creeks. The valley is here a large amphitheater in the hills, some 20 to 30 miles in width.

The instruments, which are all the property of the Weather Bureau, are well located in the observer's yard. The maximum and minimum thermometers have been exposed in a standard cotton region shelter since May, 1900. They are 5 feet above sod, 9 feet west and 15 feet north from a two-story frame dwelling. The rain gage is 20 feet north of the house, in an open space, its top 3 feet above the sod. No trees overshadow it. Prior to the receipt of the shelter the thermometers were located under a porch.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	28	36	59	22	— 8	37	12	1.2	8	0.5	3.2	10.3	10.5
January.....	25	34	55	18	—20	33	20	1.8	11	0.4	1.3	11.8	7.1
February.....	31	39	61	21	—14	36	16	1.2	8	0.5	3.2	9.2	8.1
Winter mean.....	28	36		20				4.2	27	1.4	7.7	31.3	
March.....	40	50	75	27	5	47	33	0.4	1	0.1	0.4	1.8	2.9
April.....	48	59	92	33	18	54	42	0.6	1	0.03	1.8	1.1	9.0
May.....	55	67	90	42	27	61	52	0.6	4	0.1	0.7	0.0	0.0
Spring mean.....	48	59		34				1.6	12	0.2	2.9	2.9	
June.....	60	73	95	45	31	64	56	0.4	4	0.7	0.05	0.0	0.0
July.....	65	80	96	52	38	71	60	0.2	1	0.05	0.5	0.0	0.0
August.....	66	79	97	52	36	70	60	0.2	2	0.3	0.0	0.0	0.0
Summer mean.....	64	77		50				0.8	7	1.0	0.5	0.0	
September.....	56	69	91	43	20	60	52	0.5	4	0.2	0.2	0.0	0.0
October.....	47	60	83	34	15	52	44	0.5	1	0.2	0.7	0.0	0.0
November.....	36	44	68	26	—29	43	23	1.7	9	0.6	1.5	7.0	7.0
Fall mean.....	46	58		34				2.7	17	1.0	2.4	7.0	
Annual mean.....	46	58	97	35	—29			9.3	63	3.6	13.5	41.2	10.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 3-11, 16-20, 22-27, 31; Feb. 1-3, 9-12, 16-25; Mar. 4, 6, 18, 19, 22; Apr. 4; Oct. 18-21; Nov. 4, 5, 16, 24; Dec. 1-9, 12-20, 23-31.	None.	1899	Jan. 1-10, 12-14; Feb. 1-13; Mar. 2, 15, 17, 22, 23, 25, 26; Apr. 5, 7; Oct. 14; Dec. 3, 4, 17-20, 27-30.	None.
1895	Jan. 1-10, 14-16, 18-20, 22, 26-29; Feb. 7-15; Mar. 4-8, 14, 16, 17, 31; Apr. 5, 6, 8; Sept. 6; Oct. 30; Nov. 3-6, 8, 9, 11, 12, 21-28; Dec. 13-24, 26, 28-31.	None (August missing).	1900	Jan. 25-31; Feb. 1, 4, 8, 9, 14-18, 20; Mar. 13; Nov. 4, 6, 9-11, 14, 18-23; Dec. 26, 27, 29, 30.	July 23, 30.
1896	Jan. 1-6, 11-19, 22-26, 30, 31; Feb. 1-4, 8-11, 17-20; Mar. 1-5, 7, 8, 15, 17, 18, 21, 22, 28, 30; Apr. 1, 4, 5, 16; Oct. 9, 10, 15, 27, 28; Nov. 1, 4, 5, 7, 12, 15-17, 21, 24, 30; Dec. 1-6, 9, 22-27, 29.	June 28 (August missing).	1901	Jan. 1, 5-13, 17-19, 23, 25, 29, 30; Feb. 2-7, 9-12, 18, 20-22; Mar. 24, 28; Apr. 6, 8, 22; Nov. 8, 17; Dec. 7, 11-13, 15, 16, 18-22, 29-31.	None.
1897	Jan. 1-3, 6-10, 13-19, 25-30; Feb. 13-23, 25-27; Mar. 3, 5, 7-9, 11-15, 19-22, 28, 30; Nov. 5, 14, 15, 20, 21, 25-30; Dec. 1-4, 14-26, 30, 31.	None (August missing).	1902	Jan. 10-12, 20, 22, 24-31; Feb. 1-6, 21, 22; Mar. 22, 29, 30; Nov. 3-5, 7, 21-23, 29; Dec. 5-7, 10, 11, 13-24, 28-31.	Do.
1898	Jan. 1-31; Feb. 1-3, 8; Mar. 15, 17, 18, 21-23, 25, 26; Apr. 4-7; Oct. 7; Nov. 8, 20, 24, 25, 30; Dec. 1, 5-20, 23-25, 29-31.	July 11; Aug. 9, 24.	1903	Jan. 6-12, 16-19, 22, 24, 27, 28, 30, 31; Feb. 1-9, 11-22, 25, 28, 28; Mar. 3, 5, 9, 13, 18-20, 22; Apr. 12; Oct. 30, 31; Nov. 12, 15-18, 22-24; Dec. 3-6, 8-11, 13, 14, 17, 20, 24, 27.	July 21.

WASHINGTON.

Eastern Division: WHITMAN COUNTY. Station: COLFAX.

W. H. JAMES, Observer.

[Established by Weather Bureau October, 1891. Latitude, 46° 50' N. Longitude, 117° 21' W. Elevation, 1,974 feet.]

The station is in the small city of Colfax, which is located in a deep, narrow valley. The surrounding country is a plain, which is very rolling. This is in the heart of the wheat-growing section.

The maximum and minimum thermometers have been in a standard cotton region shelter since May, 1900, in the middle of an open yard. Prior to that they were 7 feet from the ground; on the northeast side of a building under a porch. The rain gage is in the middle of an open yard, and its top is 4 feet above the ground.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	33	40	60	28	— 6	38	26	3.2	12	3.2	3.9	6.6	13.0
January.....	31	38	59	25	—18	37	27	3.1	13	3.3	2.1	13.7	9.0
February.....	34	41	59	26	—17	39	26	2.5	11	1.0	3.4	10.2	6.5
Winter mean.....	33	40		26				8.8	36	7.5	9.4	30.5	
March.....	40	49	78	30	— 8	47	35	2.1	12	0.9	3.5	4.5	5.8
April.....	48	59	88	36	21	51	44	1.9	10	0.5	1.6	0.4	2.0
May.....	54	67	93	42	28	59	49	2.0	10	1.6	1.9	0.2	2.0
Spring mean.....	47	58		36				6.0	32	3.0	7.0	5.1	
June.....	59	74	97	45	31	65	56	0.8	6	0.3	2.8	0.0	0.0
July.....	64	81	105	48	32	68	62	0.7	2	0.7	1.2	0.0	0.0
August.....	66	82	104	48	29	70	62	0.6	3	0.0	0.3	0.0	0.0
Summer mean.....	63	79		47				2.1	11	1.0	4.3	0.0	
September.....	56	70	91	41	22	59	52	1.3	8	1.6	2.2	0.0	0.0
October.....	49	63	86	35	19	55	44	2.3	7	T.	0.6	0.2	2.0
November.....	38	46	73	31	—10	44	31	3.5	14	2.2	5.9	7.5	8.0
Fall mean.....	48	60		36				7.1	29	3.8	8.7	7.7	
Annual mean.....	48	59	105	36	—18			24.0	108	15.3	29.4	43.3	13.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 2-11, 16, 20-24, 27, 31; Feb. 1-3, 10, 11, 18, 20-23; Nov. 16; Dec. 2-4, 15, 18, 27-30.	Aug. 23.	1899	Jan. 3-9, 31; Feb. 1-9, 11, 25, 26; Mar. 14, 30; Sept., Oct., Nov. missing; Dec. 1, 16, 17.	None.
1895	Jan. 1, 3, 4, 7, 14, 17-21, 24-30; Feb. 10-12, 14; Mar. 13, 14; Oct. 23, 27-30; Nov. 4, 22-25; Dec. 3, 16-18, 22, 24, 28, 30.	None.	1900	Jan. 9, 10, 23-29; Feb. 13-17; Nov. 19-22; Dec. 30, 31.	June 20; July 20-24, 29-31.
1896	Jan. 1-3, 11-16, Feb. 10; Mar. 1-5, 7, 31; Nov. 18-21, 24-30; Dec. 1, 2.	June 28; July 4, 5, 15, 16.	1901	Jan. 1, 4-9, 31; Feb. missing; Apr. 2; Dec. 11-20.	July 21, 23, 30; Aug. 4-6, 13-17, 22, 23, 29.
1897	Jan. 12, 13, 16, 17, 24-28; Feb. 13, 14; Mar. 11-15, 21, 22; Oct. 26; Nov. 24, 28, 29; Dec. 2, 3, 15-24.	July 11; Aug. 19-21.	1902	Jan., first 13 days missing, 14, 17, 19, 21, 25-31; Feb. 1-7, 12; Mar. 15, 26, 29, 30; Apr. 13, 14; Nov. 20-22; Dec. 16, 18-20, 22, 24.	Aug. 7.
1898	Jan. 1, 9-12, 20, 22-25, 27-29; Mar. 15, 17, 21, 22, 26; Nov. 12, 14, 25; Dec. 5-16, 23, 30, 31.	Aug. 2, 7-10, 25.	1903	Jan. 15, 16, 27-29, 31; Feb. 1-7, 11-15, 26; Mar. 5, 20; Apr. 6; Nov. 16-18; Dec. missing.	July 21, 22; Aug. 18.

WASHINGTON.

Western Division: LEWIS COUNTY. Station: CENTRALIA.

I. S. TURNER, Observer.

[Established by Signal Service in June, 1890, at Chehalis, 4 miles south; removed to Centralia January 5, 1902. Latitude, 46° 42' N. Longitude 122° 50' W. Elevation, 212 feet.]

This station is in the residence district of the small city of Centralia, at the corner of Front and Walnut streets, not far from the business center. The town is in the very level valley of the Chehalis River. The valley is several miles in width, and extends north and south. It is inclosed by wooded hills about 100 feet high. The distance to the hills on the east is about half a mile; on the west about 4 to 5 miles.

The maximum and minimum thermometers are exposed in a standard cotton-region shelter, which is 2 feet above sod in an open yard. The top of the rain gage is 3 feet above ground, and it is exposed in an unobstructed position 20 feet from any building.

The contour was similar at Chehalis, but the exposure of the instruments differed considerably. They were back of Marion's drug store on the crossbar of a high board fence, 6 feet above the ground. A cotton-region shelter was supplied in January, 1899.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2. Record much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1891, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	41	46	61	36	18	45	36	8.8	19	6.4	10.6	0.4	1.5
January.....	38	44	62	33	2	42	36	3.9	15	3.2	7.8	4.4	2.5
February.....	40	46	64	34	9	44	36	4.6	18	3.3	5.5	6.4	6.0
Winter mean.....	40	45		34				17.3	52	12.9	23.9	11.2	
March.....	44	52	79	34	17	48	40	3.4	16	2.5	2.8	1.2	2.0
April.....	49	59	94	38	25	54	45	4.2	17	4.9	5.5	T.	0.2
May.....	55	67	97	43	29	60	52	2.4	16	2.0	3.7	0.0	0.0
Spring mean.....	49	59		38				10.0	49	9.4	12.0	1.2	
June.....	59	72	101	47	31	64	57	2.2	11	1.1	1.4	0.0	0.0
July.....	64	79	101	48	35	69	61	0.6	5	0.9	0.0	0.0	0.0
August.....	64	79	102	50	35	69	61	0.8	5	0.6	0.6	0.0	0.0
Summer mean.....	62	77		48				3.6	21	2.6	2.0	0.0	
September.....	58	71	93	45	35	62	56	2.4	10	3.0	1.4	0.0	0.0
October.....	52	63	89	41	29	54	50	3.6	12	1.9	3.6	0.0	0.0
November.....	45	52	68	38	5	50	37	9.5	22	8.0	12.2	1.8	4.0
Fall mean.....	52	62	83	41				15.5	44	12.9	17.2	1.8	
Annual mean.....	51	61	102	41	2			46.4	166	37.8	55.1	14.2	6.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 4-6, 8, 9, 23, 31; Feb. 1-3, 9, 10, 16, 17, 19-23; Mar. 2-4, 17, 21-23; Apr. 4, 7, 8, 15, 16; May 2, 9, 10; Oct. 18, 19; Nov. 4, 5, 15-17; Dec. 1-5, 7, 13, 15-17, 19, 21, 24-31.	July 13, 14; Aug. 1, 2, 10, 21, 26; Sept. 10.	1899	Jan. and Feb. missing; Mar. 13, 14, 17, 19-26; Apr. 4, 6, 12, 20-22; May 8; Oct. 10-13; Dec. 13, 17, 18, 27.	July 25-28.
1895	Jan. 3, 4, 6, 14-16, 18, 19, 24, 26-31; other months missing.	Data missing.	1900	Jan. 19, 20, 23-29; Feb. 6, 11-16; Apr. 25; Sept. 24, 25; Nov. and Dec. missing.	June 11; July 20, 21, 30.
1896	Jan. 1-4, 10-17, 22-25, 29, 30; Feb. 2-4, 9-11, 17-20, 25, 29; Mar. 2-5, 14-17, 22, 25-27, 30, 31; Apr. 1, 3, 4, 8, 14-16, 18, 19; May 13; Nov. 4, 15-29; Dec. 14.	June 25, 26; July 3, 5, 8, 9, 14-20; Aug. 12, 13, 22, 23.	1901	Jan. 3, 8, 11, 12, 17-22, 24, 27, 30, 31; Feb. 1-10, 17-21; other months missing.	Data missing.
1897	Jan. 9-16, 24-28; Feb. 11, 12, 16, 17, 19, 21; Mar. 5, 6, 9-12, 18, 20, 28, 29; Apr. 1, 21, 26; May 1; Nov. 2; Dec. 1, 22, 23, 29-31.	Apr. 16; May 12, 27, 28; June 6; July 10, 19; Aug. 2-7, 14-16, 18, 19, 21, 22; Sept. 18.	1902	Jan. 9-12, 16, 20-31; Feb. 1-3, 5, 22; Mar. 2, 18-21, 23, 28-30; Apr. 13, 23; Sept. 17; Oct. 7; Nov. 5, 20; Dec. 7, 14-16, 18, 21, 23, 28.	May 26; June 20; July 18, 19; Aug. 5-10.
1898	Jan. 2, 7, 9-12, 20, 22-29, 31; Mar. 7, 20-25, 28, 31; other months missing.	Data missing.	1903	Jan. 7, 13-15, 21, 26, 27; Feb. 1-3, 5, 6, 11-20, 28; Mar. 1-6, 8, 12, 13, 16-19, 21-24, 29; Apr. 1, 9-12, 17, 19, 28; May 1; June 3; Nov. 12, 17, 18; Dec. 2-6, 8-10, 12, 30, 31.	June 7, 8; Aug. 19.

WASHINGTON.

Eastern Division: YAKIMA COUNTY. Station: MOXEE WELLS (near North Yakima).

HENRY B. SCUDDER, Observer.

[Established by Signal Service in May, 1890. Latitude, 46° 37' N. Longitude, 120° 31' W. Elevation, 1,000 feet.]

This station is on a fruit ranch in an irrigated section called Moxee Wells in the valley of the Yakima River, 4½ miles southeast across the river from the small city of North Yakima. The country is a broad, open, river valley, flat and level in the immediate vicinity of the station, but rising gradually to the hills about 10 miles distant on the east and 12 to 20 miles on the west.

The maximum and minimum thermometers have been exposed since February, 1899, in a standard cotton-region shelter, 4½ feet above the sod. They are in an open field several rods from any house or building. Near by are some trees. The rain gage is about 10 feet distant, and the top of the gage is 3 feet above the ground. Prior to about two years ago the rain gage was sunk into the ground, so that the top was only 6 inches above the surface. Prior to 1899 the thermometers were on the north side of a house, 16 feet from the ground. A board was used to shade them from the early morning sun and from the wind.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Great- est depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	in. In.
December.....	31	39	64	25	-8	38	24	1.1	7	0.5	0.6	6.2 10.3
January.....	30	38	59	20	-15	34	27	1.9	7	0.8	7.4	8.5 0.9
February.....	35	44	71	23	-22	40	30	1.0	5	0.5	0.4	4.2 1.9
Winter mean.....	32	40		23				4.0	19	1.8	8.4	18.9
March.....	42	55	76	28	2	48	38	0.5	4	0.2	T.	0.3 0.8
April.....	50	65	87	34	18	51	47	0.6	4	0.1	0.1	T. 0.0
May.....	58	73	99	42	24	64	54	0.9	7	0.5	0.5	0.0 0.0
Spring mean.....	50	64		35				2.0	15	0.8	0.6	0.3
June.....	65	82	106	49	30	69	59	0.4	4	0.3	0.0	0.0 0.0
July.....	71	88	105	53	36	77	66	0.1	2	0.0	0.1	0.0 0.0
August.....	70	87	108	52	35	75	64	0.2	2	0.1	1.1	0.0 0.0
Summer mean.....	69	86		51				0.7	8	0.4	1.2	0.0
September.....	59	75	97	42	24	63	56	0.4	4	0.2	0.5	0.0 0.0
October.....	50	65	89	33	13	56	46	0.5	4	0.2	0.8	0.0 0.0
November.....	39	48	90	28	-22	40	30	1.3	8	0.5	2.2	5.0 1.5
Fall mean.....	49	63		34				2.2	16	0.9	3.5	5.0
Annual mean.....	50	63	108	36	-22			8.9	58	3.9	13.7	24.2 10.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 3-11, 22-28, 31; Feb. 1, 2, 12, 13, 16, 18-23; Mar. 3, 4, 6, 22-23; Apr. 15; Oct. 20, 21; Nov. 4, 16, 22; Dec. 1-8, 12-17, 23, 24, 27-30.	May 24, 25; June 2; July 5, 7, 14, 15; Aug. 2, 3, 20-23, 27.	1894	Jan. 1-10, 12-14, 16, 19, 22, 24, 29; Feb. 1-11, 23, 26; Mar. 10, 17, 18, 21-23, 31; Apr. 5, 13, 14; Oct. 14; Dec. 3, 9, 13, 17-21, 28, 29.	July 11-18, 27; Sept. 11.
1895	Jan. 1-10, 14, 15, 17, 24-30; Feb. 1-4, 7-9, 11-16; Mar. 5, 6, 12-14, 16, 17, 29; Apr. 5, 6, 14; Oct. 27-30; Nov. 3-6, 8, 11-13, 22-25, 27, 29; Dec. 17-26, 28-30.	June 26-29; July 11, 12, 22, 23; Aug. 2, 5, 29.	1895	Jan. 20, 24-31; Feb. 1, 9, 12, 14-18; Apr. 8; Oct. 27; Nov. 11, 19-23; Dec. 27, 29-31.	June 13; July 19-24, 29-31.
1896	Jan. 2-4, 12-19, 22, 24, 26, 28-31; Feb. 2, 3, 6, 7, 10, 11, 29; Mar. 1-5, 7, 13, 21, 30, 31; Apr. 1, 4; Nov. 3, 6, 17-30; Dec. 1, 2, 4-6.	June 26-28; July 3-6, 8-10, 13-20; Aug. 16, 19, 24, 26, 28, 29.	1901	Jan. 1-3, 5, 7-12, 18, 28-30; Feb. 4-7, 9-12, 21; Mar. 23, 24, 28; Apr. 6-9, 16, 17; Nov. 8, 10, 14, 17, 19; Dec. 7, 13-18, 28-31.	July 30; Aug. 3-6, 13-16, 22-24.
1897	Jan. 15-17, 25-28, 30; Feb. 17, 18, 20-22, 26; Mar. 5, 8, 11-14, 20-22, 29, 30; Oct. 13; Nov. 5, 7, 15, 20, 26, 28-30; Dec. 1-5, 15, 18-20, 22-26.	May 28, 29; July 11; Aug. 1, 5-10, 16-23.	1902	Jan. 10-12, 24-31; Feb. 1-5, 7, 8; Mar. 14, 15, 21, 22, 29, 30; Nov. 5, 20, 22, 25, 28, 29; Dec. 2, 4, 6, 13-21, 23, 25, 27-31.	July 13, 20, 26, Aug. 6-8, 11.
1898	Jan. 1-3, 5, 7, 10-12, 14, 17-31; Feb. 2; Mar. 8, 13, 15, 17, 18, 22, 26; Nov. 7-9, 20, 21, 24, 25; Dec. 5-18, 21-25 29-31.	June 10; July 9-12, 28-31; Aug. 1, 2, 6-11, 13, 24-26.	1903	Jan. 2, 3, 5-11, 14, 19, 20, 26-28, 30, 31; Feb. 1-8 11-19; Mar. 1, 6, 12, 18-20, 22, 23; Apr. 11, 12; Oct. 30, 31; Nov. 12, 15, 16, 18, 19; Dec. 3-6, 8, 11, 12, 20, 24.	July 20, 21; Aug. 18.

WASHINGTON.

Eastern Division: GARFIELD COUNTY. Station: POMEROY.

F. W. D. MAYS, Observer.

[Established by Signal Service October, 1891. Latitude, 46° 28' N. Longitude, 117° 38' W. Elevation, 1,500 feet.]

This station is on the north side of Main street between Fourth and Fifth streets in the business section of the little city of Pomeroy, which is located in Pataha Creek Valley, surrounded by hills; gulches cut these in many places. The Blue Mountains are 14 miles distant on the south.

The maximum and minimum thermometers have been exposed in a standard cotton region shelter since February, 1899, 4½ feet above the ground. Prior to that time they were in a slatted box with open bottom 3½ feet above the sidewalk. The rain gage is 6 feet west of the shelter and its top is 3 feet above the ground.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, OCTOBER 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	36	41	64	31	-2	42	33	2.4	12	3.2	2.1	6.4	9.5
January.....	34	40	64	29	-24	40	33	2.5	13	2.2	2.4	12.2	12.0
February.....	38	43	67	31	-12	44	30	2.2	10	1.0	6.3	9.0	12.0
Winter mean.....	36	41	.....	30	.....	.....	.....	7.1	35	6.4	10.8	27.6	.....
March.....	43	50	73	35	8	47	38	2.0	13	0.8	2.2	8.4	6.5
April.....	51	60	83	42	22	55	47	1.5	11	1.3	1.3	0.6	2.3
May.....	58	70	96	48	31	66	54	2.0	11	1.1	0.9	T.	T.
Spring mean.....	51	60	.....	42	.....	.....	.....	5.5	35	3.2	4.4	9.0	.....
June.....	65	75	100	55	34	69	61	0.7	6	0.6	0.5	T.	T.
July.....	73	84	106	62	36	81	68	0.4	3	0.1	0.0	0.0	0.0
August.....	74	86	108	60	36	80	67	0.4	3	0.2	2.3	0.0	0.0
Summer mean.....	71	82	.....	59	.....	.....	.....	1.5	12	0.9	2.8	T.	.....
September.....	63	72	100	51	32	69	58	1.1	8	0.2	1.3	0.0	0.0
October.....	54	64	89	44	30	59	48	1.3	6	0.5	2.1	0.1	1.0
November.....	42	48	70	35	-7	49	35	2.9	14	2.0	4.5	5.6	5.8
Fall mean.....	53	61	.....	43	.....	.....	.....	5.3	28	2.7	7.9	5.7	.....
Annual mean.....	53	61	108	44	-24	.....	.....	19.4	110	13.2	25.9	42.3	12.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 4-9, 23, 24, 31; Feb. 1-3, 10, 21-24; Oct., Nov., Dec. missing.	July 5.	1899	Jan. 2-9; Feb. 1-8; Dec. 16, 19.	July 12-17, 27, 28.
1895	Jan., Feb., and Mar. missing; Nov. 22, 23; Dec. 17, 18, 22.	Aug. 2.	1900	Jan. 20, 27, 29; Feb. 14- 17; Oct., Nov., and Dec. missing.	July, Aug., and Sept. missing.
1896	Jan. 2, 3, 15-17; Mar. 1-4; Nov. 19, 25-30; Dec. 1, 2.	June 28; July 4, 5, 8-11, 14-17.	1901	Jan., Feb., Mar., and Apr. missing; Nov. 11; Dec. 12, 13, 16, 19-21.	May and June missing; July 30; Aug. 3-6, 12-17, 22-24.
1897	Jan. 17, 18, 24-28; Mar. 12, 13; Nov. 23, 29; Dec. 15, 16, 18-24.	May 29; July 11, 29; Aug. 4-9, 15-23; Sept. 19.	1902	Jan. 23-31; Feb. 1-4; Mar. 13; Nov. 20, 22; Dec. 12, 14, 15, 17-21.	June 22; July 19, 25, 29; Aug. 5-8, 10, 11 13, 21, 22; Sept. 2, 3.
1898	Jan. 7, 9, 10, 23-25, Mar. 21, 22; Dec. 5- 7, 9-16, 30.	July 11, 12, 29-31; Aug. 1-3, 5-14, 24, 25.	1903	Jan. 28; Feb. 1-7, 11- 15; Mar. 19; Apr. 5; Dec. 3, 5-10, 13-15.	May 31; June 7, 8, 10, 11, 15; July 18-22; Aug. 5, 7-9, 17, 18.

WASHINGTON.

Interior Valley: WALLAWALLA COUNTY. Station: WALLA WALLA.

F. NEWMAN, Observer.

[Established by Signal Service December 1, 1885. Latitude, 46° 2' N. Longitude, 118° 20' W. Elevation, 1,966 feet.]

This station is centrally located on the corner of Main and Second streets in Paine Brothers Building. The instruments are on the roof. The office has not been moved since its establishment.

The city is near the center of the valley, surrounded by mountains from 3,000 to 3,500 feet in elevation on the south to northeast and hills 100 to 200 feet in elevation on the northeast to southwest. The mountains are from 15 to 20 miles distant from the station.

The thermometers are exposed in a standard instrument shelter 11 feet above the roof of the building and 65.3 feet above the ground.

The rain and snow gages are 56.3 feet above the ground. The anemometer and wind vane are on a combined support, which is 18.8 feet high. Elevation of anemometer above ground, 71.3 feet. Elevation of wind vane above ground, 72.9 feet.

Tabulated data are from the following periods of observation: Humidity, fifteen years; remainder of data is from the full period of observation—eighteen years—December 1, 1885, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
December.....	37	43	65	32	-2	43	29	2.1	14	0.9	1.2	5.1	86	1.96	83	2.20	S.
January.....	33	38	67	27	-17	42	21	2.2	13	2.5	0.8	9.5	87	1.76	84	1.91	S.
February.....	37	44	69	30	-15	46	23	1.6	12	1.4	1.8	6.2	84	1.91	76	2.16	S.
Winter mean.....	36	42		30				5.9	39	4.8	3.8	20.8	86	1.88	81	2.09	S.
March.....	45	54	74	36	2	53	39	1.7	12	2.4	2.3	1.5	81	2.22	64	2.61	S.
April.....	53	63	89	42	29	58	49	1.8	10	0.4	3.9	0.1	67	2.29	51	2.93	S.
May.....	60	72	100	49	35	65	54	1.7	10	1.4	3.0	0.0	74	3.12	46	3.55	S.
Spring mean.....	53	63		42				5.2	32	4.2	9.2	1.6	74	2.54	54	3.03	S.
June.....	66	78	105	54	40	70	61	1.1	8	1.4	0.4	0.0	69	3.58	39	4.01	S.
July.....	74	87	108	60	45	79	70	0.4	3	0.1	0.2	0.0	59	3.62	29	3.69	S.
August.....	74	87	113	60	44	78	66	0.4	3	0.1	T.	0.0	57	3.50	31	3.72	S.
Summer mean.....	71	84		58				1.9	14	1.6	0.6	0.0	62	3.57	33	3.81	S.
September.....	64	75	100	52	36	69	58	1.0	6	0.4	2.6	0.0	69	3.46	46	4.04	S.
October.....	54	64	86	44	24	59	50	1.5	9	0.8	4.0	T.	78	2.96	61	3.50	S.
November.....	43	50	76	36	-9	49	34	2.2	12	T.	2.9	1.9	80	2.28	74	2.62	S.
Fall mean.....	54	63		44				4.7	27	1.2	9.5	1.9	76	2.90	60	3.39	S.
Annual mean.....	53	63	113	44	-17			17.7	112	11.8	23.1	24.3	74	2.72	57	3.08	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Feb. 21-23.....	July 6, 13, 18, 21, 23; Aug. 1, 2, 3, 14, 18-23, 26, 27.	1899	Jan. 4-7; Feb. 2-7; Dec. 19.	July 12-27.
1895	None.	June 28, 29; July 22, 23; Aug. 2, 5, 6, 11.	1900	Feb. 15, 16; Nov. 21, 22.	June 20; July 10, 19-24, 29-31.
1896	Mar. 2; Nov. 26-30..	June 26-28; July 3-5, 7-11, 14-20; Aug. 13, 14, 23, 24.	1901	None.	July 29, 30; Aug. 4-6, 13-16, 22, 23.
1897	Jan. 26, 27.....	May 29; July 10, 11, 26; Aug. 4-8, 15-19, 21-23.	1902	Jan. 25-29, 31; Feb. 1.	July 19, 20, 26, 30; Aug. 6-8.
1898	Dec. 10-14.....	June 10; July 3, 8, 10-12, 15, 28-31; Aug. 1, 2, 5-14, 24, 25.	1903	None.	May 30; June 8, 9, 11; July 20, 21; Aug. 18.

WASHINGTON.

Eastern Division: KLICKITAT COUNTY. Station: LYLE ("Pine Hill").

THOS. J. WHITCOMB, Observer.

Established by Weather Bureau in April, 1895. Observations have been taken since July, 1892. Latitude, 45° 30' N. Longitude, 120° 00' W. Elevation, 600 feet.]

This station is on the premises of Thos. J. Whitcomb, on Pine Hill, near the little village of Lyle, where the Klickitat River empties into the Columbia. The surrounding country is hilly.

The maximum and minimum thermometers have been exposed in a standard cotton region shelter since May, 1900. Previously they were on a board on the north side of a prune tree, at the height of the eye above ground. The rain gage is exposed in a clear space, with its top 3 feet above the surface of the ground.

The monthly mean temperature has been obtained by dividing the sum of the maximum and minimum by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	35	40	57	31	4	41	30	5.1	17	2.2	3.6	12.0	35.0
January.....	33	40	60	29	- 9	38	27	4.9	17	1.9	9.3	23.7	30.0
February.....	37	45	61	30	-11	42	30	3.8	15	2.7	3.4	11.9	9.5
Winter mean.....	35	42		30				13.8	49	6.8	16.3	47.6	
March.....	43	53	78	34	12	50	39	2.7	15	0.8	8.1	4.6	10.0
April.....	50	61	90	37	24	54	46	1.2	10	0.3	1.1	0.1	1.0
May.....	56	68	92	44	32	61	52	0.9	8	0.3	1.0	0.0	0.0
Spring mean.....	50	61		38				4.8	33	1.4	10.2	4.7	
June.....	61	76	101	50	36	67	53	0.7	6	1.0	2.7	0.0	0.0
July.....	69	82	103	54	42	73	66	0.2	2	0.2	0.2	0.0	0.0
August.....	69	83	104	54	40	73	62	0.3	2	0.0	T.	0.0	0.0
Summer mean.....	66	80		53				1.2	10	1.2	2.9	0.0	
September.....	60	74	97	47	30	64	56	1.2	8	2.0	1.9	0.0	0.0
October.....	51	64	83	40	24	58	46	1.3	8	0.5	2.8	T.	T.
November.....	41	47	69	34	- 9	46	34	4.9	17	4.3	1.7	7.2	12.0
Fall mean.....	51	62		40				7.4	33	6.8	6.4	7.2	
Annual mean.....	50	61	104	40	-11			27.2	125	16.2	35.8	54.5	39.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 4, 5, 24; Feb. 1, 10, 20-24; Dec. 28.	July 18; Aug. 2.	1899	Jan. 2-11, 13, 14; Feb. 1-8; Dec. 19, 20.	July 26-28.
1895	Jan. 1, 7, 8, 14, 15, 19, 25-28; Feb. 10; Mar. 14; Nov. 5, 6, 22-25; Dec. 29.	June 27, 28; Aug. 5.	1900	Jan. 26, 27; Feb. 14-17; Nov. 20-23; Dec. 30, 31.	June 12, 27; July 19-22, 30, 31; Sept. 12.
1896	Jan. 2, 3, 12, 13, 16, 17; Mar. 2-4, Nov. 18, 22, 26-30; Dec. 1, 2.	July 14-16, 19, 20.	1901	Jan. 1, 2, 7, 8, 10, 11; Feb. 6-9, 12, 21; Dec. 7, 12.	June 18; July 29; Aug. 3-6, 13-15.
1897	Jan. 25-30; Feb. 17; Mar. 10, 12, 30; Nov. 29; Dec. 3, 18, 20, 24.	Aug. 6, 7, 15, 16, 18, 19.	1902	Jan. 24-31; Feb. 1-5; Dec. 23, 29, 30.	July 19, 20; Aug. 5-10.
1898	Jan. 1, 10, 13, 24; Mar. 22; Dec. 7-15, 30, 31.	July 28-31; Aug. 1, 2, 5, 6, 10, 24.	1903	Jan. 27-29; Feb. 1-4, 6, 11-17; Mar. 4; Nov. 20.	June 7-9; July 20; Aug. 17.

OREGON.

By EDWARD A. BEALS,
District Forecaster.

OREGON.

Physical features.—Oregon is traversed north and south by two ranges of mountains—the Coast Range and the Cascade Range. The Coast Range has an average altitude of about 2,000 feet, and it lies near and follows closely the contour of the sea. The lofty Cascade Range is situated about 100 miles inland, and its summit ranges in altitude from about 5,000 feet to 10,000 feet or more. The caps of the taller mountains in this range are covered with perpetual snow. In the northeastern portion of the State are found the Blue Mountains, which are nearly as high as the Cascades. The Blue Mountain System contains many spurs and off-shoots, between which lie a number of fertile valleys. The southeastern portion of Oregon consists of a high plateau, whose average altitude is about 4,000 feet above the sea. The off-shoots of the Cascade and the Coast ranges merge in the southwestern portion of the State, and the general level of the valleys in this section is higher than is the case farther north.

The Columbia River, rising in British Columbia and draining an area of over 244,000 square miles, flows along the northern boundary of Oregon for a distance of 230 miles before it empties into the Pacific Ocean near Astoria. The Snake River, which is the largest tributary of the Columbia River, marks more than half of the eastern boundary of the State from the Washington line south. Besides these well-known rivers, there are many smaller streams rising in Oregon and either flowing northerly to the Columbia or the Snake rivers, or else westward to the sea. The most important of these is the Willamette River, which drains an area of 12,200 square miles and is navigable for a distance of over 140 miles.

The proximity of the State to the ocean, the prevailing winds, and the topographical conditions just described unite in causing a diversity of climate as great if not greater than that of any other State in the Union.

Temperature.—The mean temperature varies with elevation and with distance inland. In the Columbia River Valley and in all portions of the western third of the State below the level of 2,000 feet it closely approximates 52°, while east of the Cascades and south of the narrow Columbia River Valley it ranges between 43° and 51°, being warmest in the lowlands and coldest at the higher elevations. The chief feature characterizing the temperature of the entire State is the coolness which exists at night during the summer time.

In the coast counties there is no record of the temperature ever having reached 100° or of its ever having gone as low as zero. The absolute extremes at Astoria, the station with the longest record, are 97° for the highest and 10° for the lowest. In this section the average date of the last killing frost in spring is March 10, and of the first killing frost in autumn November 25, thus giving a period of two hundred and seventeen days on the average each year exempt from frosts likely to injure vegetation.

Over a strip of country about 50 miles wide and lying between the Coast and the Cascade ranges of mountains from the northern to the southern limits of the State the temperature has a wider range than in the coast counties. At Portland, the northern extremity of this section, the highest temperature occurring during a period of thirty years was 102°, and the lowest in that time was -2°. The average date of the last killing frost in spring is March 17, and the average date of the earliest killing frost in autumn is November 16, thus making a growing season of two hundred and thirteen days, or nearly as long as that in the coast counties. The absolute temperatures at Ashland near the southern boundary of this section are 108° for the highest and -4° for the lowest, and the average period exempt from frost is from April 18 to October 14, or one hundred and seventy-nine days. Thus we find greater extremes in temperature as we proceed from north to south. This anomaly is due to the increase in altitude from about 50 feet at Portland to 1,940 feet at Ashland.

East of the Cascade Mountains the climate is continental in character and characterized by large ranges in temperature. In midsummer the 100° mark is frequently passed, while in midwinter temperatures as low as zero and even 10° and 20° below are not uncommon. In the low valleys the length of the growing season compares favorably with that west of the Cascades, as shown by the record at The Dalles, where the average date of the last killing frost of spring is April 6, and the average date of the first killing frost of autumn is November 3, or one hundred and eighty days on the average each year when the danger of injury by frosts is slight. There are numerous valleys in the eastern section having similar favorable conditions. In the higher sections of this district the temperature extremes, both daily and yearly, are more marked until an altitude is reached, as at Lakeview, elevation 5,060 feet, where frosts have occurred in every month of the year.

Precipitation.—The distribution of rainfall is governed by two laws, one of which is a decrease going from north to south, which is common in all the States west of the Rocky Mountains, and the other is an increase that takes place up to certain limits on the windward slopes of all hills and mountains, thus leaving but a small amount to be precipitated on the slopes and plains beyond. In accordance with these laws, we find the annual rainfall in the southeast central portion of the State to be a trifle short of 8 inches, while along the west slope of the Coast Range of mountains, in the north, and at an altitude slightly over 2,000 feet, it amounts to over 138 inches. So great a variation of rainfall can be found nowhere else in the

United States, unless it be in the sister State of Washington. In the coast counties the precipitation ranges between 75 inches and 138 inches; between the Coast and the Cascade mountains, in the cultivated valleys, it varies between 45 inches and 20 inches, while on the hills and along the western slope of the Cascade Mountains it increases to nearly 100 inches in the north and to about 50 inches in the south. In the Columbia Valley east of the Cascades it ranges between 10 inches and 15 inches; in the foothills and valleys of the Blue Mountains between 12 inches and 25 inches, and in the Plateau section of central and southeastern Oregon between 8 inches and 22 inches.

The seasonal distribution of rainfall presents one chief type and one subtype, the former being characterized by a wet season extending from October to March, with a nearly rainless summer, and the latter by a secondary maximum of rainfall during the months of May and June, together with a wet winter and a dry summer. The chief type is the only type west of the Cascades, and the subtype occurs only east of the Cascade Mountains.

Wind.—The prevailing winds are southerly in the winter and northwesterly in the summer, the latter being so regular and constant as to be called by many the summer trade winds. They are attended by bright skies and usually are refreshingly cool. The hot winds come from the northeast quadrant in the summer time, while in the winter the winds from this direction bring the coldest weather. Southerly winds at all seasons are the rain winds, and in the summer they cause the lowest temperatures, while in winter they are attended by mild weather and are then called "chinook" winds. The highest velocities ever recorded are as follows: Astoria, 48 miles southwest, March 8, 1900, and also in January, February, and December of other years; Baker City, 50 miles southwest, December 21, 1900; Portland, 55 miles south, March 25, 1897; and Roseburg, 48 miles south and southwest, June 14, 1888. The record at Portland is misleading, for in January, 1890, a maximum velocity of 53 miles occurred with the anemometer exposed about 79 feet above the ground, whereas the 55-mile record in March, 1897, was obtained with the anemometer 213 feet above the ground. It has been calculated that the 53 miles at the lower elevation is equivalent to 87 miles at the higher one. The storm of January, 1880, was the hardest known, and an immense amount of timber was prostrated, while neither before nor since, within the memory of white men, has any such destructive wind occurred. In the winter months along the immediate coast storms with high southerly winds are not uncommon, and when they set in they sometimes last for four or five days before moderating to any great extent.

Hail.—Statistics on the subject of hail are very meager and also confusing, owing to its frequently being recorded when snow would have been the proper entry. Crops seldom suffer damage from this cause, and but two instances are on record during the past five seasons when noteworthy injury of this character occurred; one was in Morrow County on June 14, 1903, during the cloudburst that caused the Heppner flood, and the other was on May 25, 1901, near Springfield, in Lane County. The track of the latter storm was from 3 to 5 miles wide and from 7 to 10 miles in length, and much grain and fruit was destroyed.

Thunderstorms.—Thunderstorms west of the Cascades, although infrequent, occur nearly every year, but they are usually very light and consist of from one to two or three flashes of lightning and its attendant thunder at the time of the passage of a rain squall. In the coast counties they are nearly as frequent in the winter as in the summer and average from three to eight each year. In the Willamette Valley and southern Oregon about the same number are annually reported, but in this section they are most frequent in the spring and early summer and seldom occur during the winter months. East of the Cascades most of the rain during the late spring and summer is attended by thunder, and in the mountainous district thunderstorms are frequent, as shown by the record at Dayville, where the yearly average is 17.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Baker.....	Baker City...	Eastern.....	962	Lincoln.....	Newport.....	Coast.....	958
Benton (<i>see</i> Albany).....		Willamette Valley.....		Linn.....	Albany.....	Willamette Valley.....	959
Clackamas (<i>see</i> Portland).....		do.....		Malheur.....	Beulah.....	Plateau.....	963
Clatsop.....	Astoria.....	Coast.....	951	Marion (<i>see</i> Albany).....		Willamette Valley.....	
Columbia (<i>see</i> Astoria).....		do.....		Morrow (<i>see</i> Lonerock).....		Eastern section.....	
Coos.....	Bandon.....	do.....	964	Multnomah.....	Portland.....	Willamette Valley.....	963
Crook.....	Prineville.....	Plateau.....	960	Polk (<i>see</i> Albany).....		do.....	
Curry (<i>see</i> Bandon).....		Coast.....		Sherman (<i>see</i> The Dalles).....		Columbia River Valley.....	
Douglas.....	Roseburg.....	Southern Oregon.....	965	Tillamook.....	Glenora.....	Coast.....	952
Gilliam.....	Lonerock.....	Plateau.....	957	Umatilla.....	Pendleton.....	Eastern section.....	956
Grant.....	Dayville.....	do.....	961	Union (<i>see</i> Baker City).....		Eastern.....	
Harney.....	Happy Valley.....	do.....	967	Walla Walla.....	Joseph.....	do.....	917
Jackson.....	Ashland.....	Southern Oregon.....	968	Wasco.....	The Dalles.....	Columbia River Valley.....	954
Josephine (<i>see</i> Ashland).....		do.....		Washington (<i>see</i> Portland).....		Willamette Valley.....	
Klamath (<i>see</i> Silver Lake and Lakeview).....		Plateau.....		Wheeler (<i>see</i> Dayville).....		Plateau.....	
Lake.....	Lakeview.....	do.....	969	Yamhill (<i>see</i> Portland).....		Willamette Valley.....	
	Silver Lake.....	do.....	966				

CLIMATOLOGY OF THE UNITED STATES.

STATE SUMMARY.

Station.	Num-ber.	Temperature.										Average num-ber days with—	
		Mean an-nual.	Mean maxi-mum.	Mean mini-mum.	Absol-ute maxi-mum.	Date.	Absol-ute mini-mum.	Date.	Maxi-mum above 90°.	Mini-mum below 32°.			
		° F.	° F.	° F.	° F.		° F.		° F.				
Astoria.....	1	52	58	45	97	June, 1903.....	10	January, 1888.....	0	12			
Glenora.....	2	49	60	38	106	August, 1894.....	6	February, 1899.....	11	75			
Portland.....	3	53	61	45	102	July, 1891.....	- 2	January, 1888.....	5	28			
The Dalles.....	4	52	62	41	108	August, 1897.....	-19	February, 1884.....	18	71			
Lonerock.....	5	46	60	32	106	August, 1898.....	-22	February, 1899.....	8	171			
Pendleton.....	6	52	66	38	119	August, 1898.....	-16	January, 1890.....	38	101			
Joseph.....	7	42	54	30	108	May, 1903.....	-24	February, 1899.....	4	187			
Newport.....	8	51	58	44	95	June, 1903.....	12	.....do.....	1	12		
Albany.....	9	53	63	43	103	July, 1891.....	9	May, 1891.....	11	2			
Prineville.....	10	49	67	31	105	July, 1900.....	-17	February, 1899.....	25	200			
Dayville.....	11	50	64	37	105	August, 1898.....	-11	November, 1900.....	20	112			
Baker City.....	12	45	56	34	101	July, 1890.....	-20	February, 1899.....	11	147			
Beulah.....	13	46	62	29	107	July, 1901.....	-23	February, 1899.....	39	200			
Bandon.....	14	51	57	47	92	September, 1888.....	14	.....do.....	0	7		
Roseburg.....	15	53	63	43	104	August, 1894.....	- 6	January, 1888.....	8	35			
Silver Lake.....	16	44	61	28	104	July, 1891.....	-32	November, 1896.....	.....	32		
Happy Valley.....	17	45	59	30	102	August, 1898.....	-31	.....do.....	13	195		
Ashland.....	18	52	65	39	108	July, 1885.....	- 4	February, 1884.....	24	78			
Lakeview.....	19	46	60	32	102	July, 1896.....	-24	January, 1888.....	15	179			

Station.	Num-ber.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Astoria.....	1	Nov. 25	Mar. 13	Nov. 1	Apr. 22	Inches. 78.2	Inches. 17.9	Inches. 5.7	Inches. 21.5	Inches. 33.1
Glenora.....	2	Oct. 18	May 16	Sept. 9	June 25	136.3	31.8	6.2	40.1	58.2
Portland.....	3	Nov. 16	Mar. 17	Oct. 13	May 17	45.6	10.7	3.0	11.9	20.0
The Dalles.....	4	Nov. 3	Apr. 6	Oct. 4	May 12	15.4	2.6	0.9	4.1	7.8
Lonerock.....	5	Sept. 16	June 23	Aug. 26	July 25	14.6	4.5	2.2	3.5	4.4
Pendleton.....	6	Oct. 3	May 7	Sept. 8	June 10	14.5	4.2	1.8	3.8	4.7
Joseph.....	7	Sept. 7	June 17	Aug. 3	July 7	17.8	5.0	3.3	4.6	4.9
Newport.....	8	Dec. 28	Mar. 22	Oct. 19	Apr. 27	73.2	19.3	4.6	20.4	28.9
Albany.....	9	Nov. 4	Mar. 27	Sept. 22	Apr. 28	44.2	10.9	2.0	11.5	19.8
Prineville.....	10	.....	.....	.....	.....	8.2	2.5	1.2	2.1	2.4
Dayville.....	11	Sept. 25	May 26	Aug. 29	June 24	12.3	3.9	1.1	3.2	4.1
Baker City.....	12	Sept. 26	June 1	Sept. 4	June 17	13.2	4.0	2.0	2.9	4.3
Beulah.....	13	Sept. 3	June 28	Aug. 14	July 13	11.1	3.1	0.9	2.5	4.6
Bandon.....	14	Nov. 25	Mar. 10	Oct. 13	May 2	67.2	16.8	3.4	15.8	31.2
Roseburg.....	15	Oct. 30	Apr. 15	Oct. 9	May 16	34.9	8.2	2.0	8.0	16.7
Silver Lake.....	16	.....	.....	.....	.....	10.4	3.1	1.6	2.7	3.0
Happy Valley.....	17	Sept. 1	June 17	Aug. 10	July 19	16.7	5.0	4.7	3.1	3.9
Ashland.....	18	Oct. 14	Apr. 18	Sept. 13	May 9	20.2	5.1	2.2	4.6	8.3
Lakeview.....	19	.....	.....	.....	.....	17.0	4.8	1.8	3.6	6.8

OREGON.

Coast District: CLATSOP COUNTY. Station: ASTORIA.

[Established January 1, 1885. Latitude, 46° 11' N. Longitude, 124° 0' W. Elevation, 16 feet.]

Astoria is a small city located on a head of land formed by the junction of Youngs River with the Columbia River. Low hills having an average altitude of about 350 feet closely environ the city in every direction except to the north, which has a water frontage on the Columbia River, which at Astoria is 4½ miles wide.

Observations of temperature and rainfall have been made at this station at various times from 1850 to date. Only the record from 1885 has been used in compiling the data in the table below.

The thermometers and the rain gage in use were of standard pattern, and the exposures have been considered good.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 44	° F. 49	° F. 62	° F. 39	° F. 27	° F. 48	° F. 41	In. 12.8	22	In. 9.8	In. 13.3	In. 1.0	In. 7.0	E.
January.....	41	46	60	37	10	45	35	11.1	22	6.8	18.8	3.5	9.0	E.
February.....	43	48	64	37	15	47	35	9.2	20	10.6	12.5	2.2	5.5	SW.
Winter mean.....	43	48	.....	38	.....	.....	.....	33.1	64	27.2	44.6	6.7	.....	E.
March.....	46	52	74	40	24	52	42	7.7	21	1.5	4.2	1.1	3.0	SW.
April.....	49	55	81	42	32	53	46	6.1	19	1.0	8.8	0.0	T.	SW.
May.....	54	61	86	47	35	58	50	4.1	14	3.4	5.6	0.0	0.0	W.
Spring mean.....	50	56	.....	43	.....	.....	.....	17.9	54	5.9	18.6	1.1	.....	SW.
June.....	59	65	87	51	40	61	54	3.4	13	2.8	2.6	0.0	0.0	SW.
July.....	61	68	91	54	41	64	57	1.1	7	0.0	0.5	0.0	0.0	NW.
August.....	62	69	88	55	45	65	59	1.2	6	0.0	4.8	0.0	0.0	W.
Summer mean.....	61	67	.....	53	.....	.....	.....	5.7	26	2.8	7.9	.....	.....	W.
September.....	59	66	87	52	40	62	56	3.7	11	4.2	2.1	0.0	0.0	SW.
October.....	54	60	80	49	34	58	50	6.0	16	3.4	10.3	0.0	0.0	SW.
November.....	47	52	66	42	19	53	42	11.8	21	12.4	17.8	0.3	2.5	SW.
Fall mean.....	53	59	.....	48	.....	.....	.....	21.5	48	20.0	30.2	0.3	.....	SW.
Annual mean.....	52	58	97	45	10	.....	.....	78.2	192	55.9	101.3	8.1	9.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 4, 5, 31; Feb. 1, 9, 10, 19-22; Mar. 4; Dec. 28.	None.	1898	Jan. 10, 23-25; Mar. 22; Dec. 12.	None.
1895	Jan. 20, 25-28; Mar. 14; Dec. 17.	July 9, 10.	1899	Jan. 3, 4; Feb. 1-7....	Do.
1896	Jan. 13, 14; Feb. 10; Mar. 1-4; Nov. 25-30.	None.	1900	Feb. 14-16; Nov. 19-22; Dec. 31.	Do.
1897	Jan. 15, 25-27; Feb. 13, 21; Mar. 11, 12.	Do.	1901	Jan. 9; Feb. 1, 7, 9, 21; Dec. 12, 13.	Do.
			1902	Jan. 24-31.....	Do.
			1903	Feb. 1-4, 11-16; Mar. 12.	June 7.

OREGON.

West Slope, Coast Range: TILLAMOOK COUNTY. Station: GLENORA.

JENNIE A. REEHER, Observer.

[Established by the Weather Bureau January, 1892. Latitude, 45° 02' N. Longitude, 123° 53' W. Elevation, 575 feet.]

This station is located in a canyon on the west slope of the Coast Range of mountains about 14 miles west of the main divide, which is 2,500 feet high, and about a quarter of a mile east from where the North Fork of the Wilson River empties into the main stream. The floor of the canyon, where the instruments are exposed, is about a quarter of a mile wide and comparatively level. The mountains on the south side rise gradually to about 500 feet, then quite abruptly to 1,000 or 1,500 feet. On the north side, beginning a short distance from the observer's house, the rise is steep for the first 500 or 600 feet, after which it is more gradual to the summit.

The thermometers are exposed in a standard shelter, which is located in the observer's yard. The shelter faces the east and is located about 40 feet southwest of the house. The height of the thermometers above sod is 5 feet.

The rain gage is exposed 2 feet above ground, 30 feet distant, southwest of the house, and about 15 feet east of the fence and 10 feet north of the shelter. It has no box support but is set on the ground and is packed solidly with earth around the bottom of the overflow to keep it in place.

The exposure of the instruments is good.

The mean temperature has been calculated by dividing the sum of the maximum and minimum thermometer readings by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 39	° F. 45	° F. 57	° F. 33	° F. 19	° F. 43	° F. 33	In. 23.0	20	In. 14.5	In. 18.5	In. 7.0	In. 27.0	SW.
January.....	38	44	59	31	10	42	34	18.3	19	7.6	30.1	13.1	11.5	SW.
February.....	39	46	65	32	6	42	34	16.9	19	6.6	19.2	11.7	10.0	SW.
Winter mean.....	39	45	.....	32	.....	.....	.....	58.2	58	28.7	67.8	31.8	.....	SW.
March.....	42	52	79	32	11	49	39	13.8	19	5.0	12.6	12.6	11.2	SW.
April.....	47	59	90	35	24	51	42	11.5	18	17.2	16.8	1.3	3.0	SW.
May.....	52	65	99	40	28	58	49	6.5	15	4.9	6.9	0.0	0.0	SW.
Spring mean.....	47	59	.....	36	.....	.....	.....	31.8	52	27.1	36.3	13.9	.....	SW.
June.....	57	71	101	43	30	60	53	3.7	11	1.6	2.6	0.0	0.0	SW.
July.....	62	78	104	46	32	69	59	1.3	5	2.5	0.3	0.0	0.0	NW.
August.....	63	81	106	46	32	67	58	1.2	4	1.1	5.9	0.0	0.0	NW.
Summer mean.....	61	77	.....	45	.....	.....	.....	6.2	20	5.2	8.8	0.0	.....	NW.
September.....	57	72	96	42	30	62	52	5.4	10	10.3	3.0	0.0	0.0	SW.
October.....	51	63	83	39	22	54	47	9.2	13	6.3	10.8	0.0	0.0	SW.
November.....	43	50	68	36	11	48	37	25.5	20	25.6	35.8	1.6	6.0	SW.
Fall mean.....	50	62	.....	39	.....	.....	.....	40.1	43	42.2	49.6	1.6	.....	SW.
Annual mean.....	49	60	106	38	6	.....	.....	136.3	173	103.2	162.5	47.3	27.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO NOVEMBER, 1904.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 5; Feb. 21-23; Nov. 17; Dec. 20.	July 13, 18; Aug. 2, 22, 25-28.	1898	Jan. 24, 25; Dec. 10-12.	July 28-31; Aug. 1, 4, 5, 23; Sept. 7.
1895	Jan. 27, 28; Mar. 14; Nov. 5, 6, 23, 24; Dec. 17, 29.	June 25-27; July 10, 11; Aug. 5, 14.	1899	Feb. 1-6; Oct. 13.....	July 25-28; Sept. 19.
1896	Jan. 13; Mar. 2-4; Nov. 24-28.	July 14, 15, 17-20; Aug. 12; Sept. 5.	1900	Feb. 15, 16; Nov. 20, 21.	July 19.
1897	Jan. 26; Mar. 12.....	May 28; Aug. 3, 6, 14, 15, 18-20.	1901	Feb. 8, 9.....	Aug. 4-6, 12, 14, 15, 22.
			1902	Jan. 25-29; Feb. 1, 2, 4-7, 11-18.	July 25; Aug. 6, 7, 10.
			1903	.....	June 7; July 20; Aug. 17.
			1904	.....	June 28; July 10, 20, 31; Aug. 12.

OREGON.

Willamette Valley: MULTNOMAH COUNTY. Station: PORTLAND.

E. A. BEALS, District Forecaster.

[Established by Signal Service November 1, 1871. Latitude, 45° 32' N. Longitude, 122° 43' W. Elevation, 32 feet.]

The station, although always near the business center of the city, has been located in various buildings since its establishment.

Portland is situated on the Willamette River, about 12 miles from its junction with the Columbia River. The Willamette River for several miles flows almost due north before reaching the center of the city, at which point it trends to the northwest and continues in that direction for 8 miles, when it gradually curves to the north and east until its mouth is reached. To the west of the river, and varying in distance from three-quarters to a mile and a half, is an abrupt rise of land from 500 to 1,000 feet in height. Back of the summit of this bluff the land is undulating and considerably broken by small valleys and hills until the Coast Range of mountains is reached about 40 miles distant. To the east the country is slightly rolling to the foothills of the Cascade Mountains, some 15 or 20 miles away, and it has a lower elevation than the table-land to the westward.

The thermometers are exposed in a standard roof shelter.

Tabulated data are from the following periods of observation: Temperature data, thirty years, 1874-1903; humidity, fifteen years, 1889-1903; sunshine and wind direction, fourteen years, 1890-1903. Remainder of data is from the full period of observation, thirty-two years, November 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.					Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Average number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	42	47	65	37	3	48	32	7.4	20	3.5	13.4	5.2	4.0	89	2.44	82	2.61	64	22	S.
January.....	39	44	62	34	-2	44	29	6.6	20	8.5	4.8	5.8	15.0	89	2.18	81	2.31	75	31	S.E.
February.....	42	48	68	35	7	47	32	6.0	17	1.0	7.5	3.9	8.5	88	2.33	73	2.49	134	36	S.
Winter mean.....	41	46	.....	35	.....	.....	.....	20.0	57	13.0	25.7	14.9	.....	89	2.32	79	2.47	91	30	S.
March.....	47	55	79	39	20	54	40	5.1	18	2.8	9.1	1.2	2.0	86	2.54	62	2.62	166	41	S.
April.....	51	60	89	42	28	55	46	3.2	15	1.9	5.3	T.	0.2	85	2.80	56	2.91	200	43	N.W.
May.....	57	67	99	48	32	62	51	2.4	14	3.4	1.9	0.0	0.0	86	3.39	54	3.43	230	49	N.W.
Spring mean.....	52	61	.....	43	.....	.....	.....	10.7	47	8.1	16.3	1.2	.....	86	2.91	57	2.99	199	44	N.W.
June.....	62	72	99	52	39	66	58	1.7	11	0.6	2.4	0.0	0.0	84	3.80	53	4.17	329	69	N.W.
July.....	67	78	102	56	45	70	64	0.6	4	0.2	1.0	0.0	0.0	84	4.21	45	4.21	268	61	N.W.
August.....	66	77	97	55	43	70	63	0.7	4	0.4	0.6	0.0	0.0	86	4.62	48	4.49	183	49	N.W.
Summer mean.....	65	76	.....	54	.....	.....	.....	3.0	19	1.2	4.0	0.0	.....	85	4.21	49	4.29	260	60	N.W.
September.....	61	71	93	51	36	66	58	1.8	8	1.2	1.1	0.0	0.0	88	4.27	56	4.19	148	44	N.W.
October.....	54	62	83	46	31	59	50	3.6	13	T.	10.5	0.0	0.0	91	3.58	68	3.78	64	23	N.W.
November.....	46	52	73	40	11	52	39	6.5	17	2.9	9.9	0.9	3.0	90	2.86	80	3.15	53	20	S.
Fall mean.....	54	62	.....	46	.....	.....	.....	11.9	38	4.1	21.5	0.9	.....	90	3.57	68	3.71	88	29	N.W.
Annual mean.....	53	61	102	45	-2	.....	.....	45.6	161	26.4	67.5	17.0	15.0	87	3.25	63	3.36	160	41	N.W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 90° or above.	Year.	Minimum below 22°.	Maximum 90° or above.
1894	Feb. 21.....	June 2; July 12-14, 18; Aug. 1, 27.	1899	Jan. 4, 6, 7; Feb. 1-6..	July 26, 27.
1895	.....	June 26, 27; July 9-11, 21; Aug. 5.	1900	Feb. 3, 4.....	June 12; July 20.
1896	Mar. 2.....	June 25, 28; July 14-18; Aug. 12, 22, 23.	1901	.....	Aug. 4-6, 14, 15, 22.
1897	Jan. 26.....	May 12, 28; July 10; Aug. 3, 6, 7, 14-16, 18, 19, 21.	1902	Jan. 24-29.....	May 26; July 18, 19, 25; Aug. 5-7, 9, 10.
1898	Dec. 12, 13.....	June 6, July 29-31; Aug. 1, 5, 10, 23, 24.	1903	.....	June 7, 8; July 20; Aug. 17.

OREGON.

Columbia River Valley, Eastern Section: WASCO COUNTY. Station: THE DALLES.

S. L. BROOKS, Observer.

[Established by Mr. Brooks in November, 1874, and continued by him from that date up to the present time. Latitude, 45° 36' N. Longitude, 121° 12' W. Elevation, 112 feet.]

This station is near the center of the city, which is situated on the Columbia River at the base of the eastern slope of the Cascade Mountains. The country surrounding the station on the east and south consists of a high rolling, treeless plateau, with altitudes varying from 500 to 1,850 feet. Across the river to the north is a range of hills about 3,000 feet high, known as the Klickitats.

The maximum and minimum thermometers are exposed on the north side of the observer's residence, 6 feet from the building and 12 feet above the ground. The shelter is of Venetian blinds open at the top and toward the north. The rain gage is located 12 feet south of the house; its top is 4 feet above the ground. Owing to the absence of wind during precipitation, the close proximity of the house has little or no effect in influencing the catch.

The mean temperature has been computed by dividing the sum of the maximum and minimum temperatures by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1875, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	36	41	66	30	-18	44	20	3.0	12	1.1	4.8	12.1	29.5	E.
January.....	32	38	65	26	-13	41	22	2.6	11	0.8	4.2	12.9	17.0	W.
February.....	37	46	69	29	-19	45	22	2.2	9	1.0	0.3	8.2	21.5	W.
Winter mean.....	35	42	.....	28	.....	.....	.....	7.8	32	2.9	9.3	33.2	.....	W.
March.....	45	55	78	35	- 1	53	38	1.3	9	0.3	2.1	1.2	5.5	W.
April.....	53	65	88	41	25	56	50	0.7	6	0.1	0.6	T.	0.2	W.
May.....	60	72	98	48	30	64	55	0.6	5	0.0	0.8	0.0	0.0	W.
Spring mean.....	53	64	.....	41	.....	.....	.....	2.6	21	0.4	3.5	1.2	.....	W.
June.....	66	78	103	54	40	71	61	0.6	4	0.7	1.6	0.0	0.0	W.
July.....	71	84	105	57	42	80	67	0.1	1	0.2	0.1	0.0	0.0	W.
August.....	70	83	108	57	41	76	65	0.2	1	0.0	0.1	0.0	0.0	W.
Summer mean.....	69	82	.....	56	.....	.....	.....	0.9	6	0.9	1.8	0.0	.....	W.
September.....	62	75	101	48	33	70	57	0.6	4	0.8	0.7	0.0	0.0	W.
October.....	52	64	88	41	20	58	45	1.3	7	0.1	4.8	T.	1.0	W.
November.....	42	49	72	34	- 2	47	35	2.2	10	2.1	6.1	2.4	12.0	W.
Fall mean.....	52	63	.....	39	.....	.....	.....	4.1	21	3.0	11.6	2.4	.....	W.
Annual mean.....	52	62	108	41	-19	.....	.....	15.4	79	7.2	26.2	36.8	29.5	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1894	Jan. 23, 24; Feb. 12, 20-24; Nov. 16; Dec. 28, 29.	July 13, 14, 18; Aug. 1, 2, 21-23, 26, 27.	1899	Jan. 2-11, 13, 14; Feb. 1-8; Dec. 18-20.	July 12, 14, 15, 26, 27, 28.
1895	Jan. 1, 4, 5, 7-9, 14, 15, 22, 25-29; Feb. 10, 14; Mar. 14; Nov. 6, 23, 24; Dec. 21, 22.	June 26-28; July 10, 22, 23; Aug. 2, 4, 5.	1900	Jan. 26, 28; Feb. 15-17; Nov. 20-23.	June 13; July 19, 20, 22, 23, 29, 30, 31.
1896	Jan. 12, 13, 16, 17; Mar. 2-4; Nov. 7, 18, 22, 26-30; Dec. 1, 2.	June 26; July 3, 4, 8, 9, 10, 14, 15, 16, 17, 18, 19, 20; Aug. 13, 23.	1901	Jan. 1, 7, 11; Feb. 6, 7, 9-13, 21; Mar. 10; Dec. 12.	Aug. 3, 4, 5, 6, 13, 14, 15, 16, 22.
1897	Jan. 25-27, 30; Nov. 30; Dec. 24.	July 10, 11; Aug. 3, 4, 6, 7, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.	1902	Jan. 24-31; Feb. 1-5; Dec. 28, 29.	July 18, 19, 20, 21, 25; Aug. 5, 6, 7, 8.
1898	Jan. 10; Dec. 9-15.....	June 8, 9, 10, 29; July 2, 8, 10, 11, 24, 27, 28, 29, 30, 31; Aug. 1, 2, 5, 6, 8, 9, 10, 23, 24.	1903	Jan. 28, 29; Feb. 3, 12, 14, 15.	June 7, 8, 9; July 20; Aug. 18.

OREGON.

Plateau District, Eastern Section: GILLIAM COUNTY. Station: LONE ROCK.

R. M. JOHNSON, Observer.

[Established by Mr. W. H. Colwell in February, 1886. Latitude, 45° 5' N. Longitude, 119° 57' W. Elevation, 3,114 feet.]

The station is situated 1 mile south of the village of Lone Rock and near the south end of a valley which is 1 mile wide and 4 miles long. The hills on either side of the valley rise to an elevation of about 1,000 feet.

The maximum and minimum thermometers are exposed in a shelter located 40 feet north of the observer's house. The shelter is open at the bottom, and the sides and ends are of slat work. The thermometer bulbs are 8 feet above the sod. The rain gage is 20 feet east of the shelter and 50 feet from the house. The top of the gage is 5 feet above the ground.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	33	43	66	23	- 6	39	27	1.6	8	0.6	2.2	5.7	8.0	H.
January.....	32	42	67	21	- 16	38	22	1.5	8	1.4	2.0	9.6	10.0	SW.
February.....	32	43	62	22	- 22	39	26	1.3	9	0.3	1.7	10.5	15.0	S., SW.
Winter mean.....	32	43	.....	22	.....	.....	.....	4.4	25	2.3	5.9	25.8	.....	S., SW.
March.....	37	49	71	26	- 8	42	33	1.6	10	0.6	1.6	6.6	12.5	S., SW.
April.....	44	58	81	30	16	50	39	1.2	9	0.4	0.8	1.7	5.0	W.
May.....	50	64	91	35	20	55	44	1.7	9	0.7	1.6	0.0	0.0	SW.
Spring mean.....	44	57	.....	30	.....	.....	.....	4.5	28	1.7	4.0	8.3	.....	SW.
June.....	56	71	96	40	22	61	52	1.3	6	4.0	1.5	0.0	0.0	NW.
July.....	61	80	99	43	29	64	58	0.4	3	0.8	0.1	0.0	0.0	NW.
August.....	63	82	100	45	28	69	56	0.5	3	0.0	1.0	0.0	0.0	NW.
Summer mean.....	60	78	.....	43	.....	.....	.....	2.2	12	4.8	2.6	0.0	.....	NW.
September.....	55	71	94	38	20	60	49	1.0	6	0.4	1.0	0.0	0.0	NW.
October.....	48	63	86	32	5	55	41	1.1	6	1.2	2.8	0.1	0.5	W.
November.....	41	53	74	29	- 3	46	36	1.4	8	0.5	0.8	2.0	3.2	S.
Fall mean.....	48	62	.....	33	.....	.....	.....	3.5	20	2.1	4.6	2.1	.....	a NW.
Annual mean.....	46	60	106	32	- 22	.....	.....	14.6	85	10.9	17.1	36.2	15.0	NW.

a Also W., S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO NOVEMBER, 1904.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Feb. 18-22; Mar. 3, 4, 6; Dec. 2, 25-31.	Aug. 23.	1899	Jan. 3-8; Feb. 1-6; Oct. 13; Dec. 16, 17.	July 15.
1895	Jan. 1-4, 6, 7, 17, 25-28; Feb. 10, 11, 14; Mar. 13-15; Nov. 5, 6, 22-24, 26.	None.	1900	Jan. 24-28; Feb. 14-17, 19; Nov. 19, 21; Dec. 30.	July 31.
1896	Jan. 3, 12, 15-17; Mar. 1, 4.	Do.	1901	Dec. 12.....	Aug. 5.
1897	None.....	Do.	1902	Jan. 25-31; Feb. 3, 4.	July 20.
1898	Mar. 22.....	July 31; Aug. 2, 7-11, 24.	1903	Feb. 3, 4, 10-14; Mar. 4.	Aug. 17.
			1904	Feb. 9.....	July 21; Aug. 4-6, 8, 17.

OREGON.

Eastern Section: UMATILLA COUNTY. Station: PENDLETON.

R. P. BRYSON, Observer.

[Established by the Signal Service December 1, 1889. Discontinued July 31, 1903. Latitude, 45° 40' N. Longitude, 118° 40' W. Elevation, 1,120 feet.]

The station has always been near or within the city limits of Pendleton. But little is known as to the exact location and surroundings prior to June 1, 1893, at which time the observer placed the instruments near the center of the city.

The maximum and minimum thermometers were of standard pattern and exposed in a regulation shelter furnished by the State. The location of the shelter was not always good.

The rain gage, which was of standard pattern, had at all times a good ground exposure, with no trees or buildings within 20 feet of it.

The mean temperature has been determined by dividing the sum of the maximum and minimum temperatures by 2.

Observations were made by the following: Mr. P. Zahner from December, 1889, to April, 1891; Mr. J. H. Zahner from April, 1891, to January, 1893; Mr. William Hilton from June, 1893, to the end of September, 1902; Mr. R. P. Bryson from October, 1902, to July, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1890, TO JULY 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	37	46	66	29	- 5	43	29	1.5	9	1.7	2.3	4.3	6.0	W.
January.....	34	42	68	26	-16	41	21	1.7	9	2.2	1.8	8.4	11.0	SW.
February.....	37	47	76	27	-13	46	30	1.5	8	0.5	1.9	5.2	9.0	SW.
Winter mean.....	36	45		27				4.7	26	4.4	6.0	17.9		SW.
March.....	44	56	78	33	- 7	51	38	1.5	9	1.0	1.8	2.8	9.0	W.
April.....	51	65	90	37	21	55	47	1.2	7	0.3	1.6	0.1	1.0	W.
May.....	58	73	103	44	29	64	54	1.5	7	1.7	1.7	0.0	0.0	W.
Spring mean.....	51	65		38				4.2	23	3.0	5.1	2.9		W.
June.....	64	80	105	49	31	70	60	0.9	6	0.1	0.6	0.0	0.0	W.
July.....	71	89	109	52	35	76	67	0.4	2	0.4	0.1	0.0	0.0	W.
August.....	71	90	119	51	36	76	67	0.5	2	0.1	2.1	0.0	0.0	W.
Summer mean.....	69	86		51				1.8	10	0.6	2.8	0.0		W.
September.....	61	78	102	43	26	66	57	0.9	5	1.3	1.8	0.0	0.0	W.
October.....	52	68	90	36	20	58	48	1.2	6	0.0	2.2	0.0	0.0	W.
November.....	43	54	76	32	-13	49	35	1.7	8	1.2	2.2	2.8	5.0	W.
Fall mean.....	52	67		37				3.8	19	2.5	6.2	2.8		W.
Annual mean.....	52	66	119	38	-16			14.5	78	10.5	20.1	23.6	11.0	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO JULY 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 5, 9, 31; Feb. 3, 20-23.	July 6, 13-15, 18, 21-23, 31; Aug. 1-3, 14, 16, 19, 20, 21-23, 26, 27.	1899	Jan. 4-8; Feb. 1-6.....	June 23; July 2, 11-20, 25-29; Aug. 3-6; Sept. 10, 11, 24.
1895	Jan. 7, 25, 28; Dec. 18.	June 26-29; July 10-12; Aug. 1-6.	1900	Feb. 11; Nov. 21, 22...	June 13, 20; July 7, 10, 15, 16, 19-24, 28-31; Aug. 1, 14, 20.
1896	Mar. 2-4; Nov. 26-30; Dec. 1.	June 26-28; July 3-5, 7-20; Aug. 12-16, 23-26.	1901	Feb. 8, 9.....	June 18; July 5-7, 19, 21-23, 29, 30; Aug. 1-7, 11-18, 22-25, 28-30; Sept. 4.
1897	Jan. 25-27.....	May 28, 29; July 10, 11, 26, 27, 29; Aug. 3-9, 14-23.	1902	Jan. 25-29, 31; Feb. 1, 2.	June 22, 23; July 9, 14, 18-21, 23-26, 30; Aug. 5-11, 21, 22, 26; Sept. 1, 2.
1898	Jan. 25; Dec. 10-13...	June 8-10; July 2, 7-12, 15, 24, 27-31; Aug. 1, 2, 5-15, 23-26, 28; Sept. 17, 18.	1903	Feb. 2, 3, 5.....	June 7-11; July 10, 19-22.

OREGON.

Eastern District: WALLOWA COUNTY. Station: JOSEPH

J. D. McCULLY, Observer.

[Established by the Signal Service November 1, 1889. Latitude, 45° 21' N. Longitude, 117° 15' W. Elevation, 4,400 feet.]

The station is located on the south side of the town, which is situated on an open plain with a gradual rise to the south of about 125 feet to the mile. About 3 miles south of the town is a spur of the Blue Mountains, having an elevation of from 2,500 to 3,000 feet above the town, or about 7,000 feet above sea level.

The maximum and minimum thermometers are exposed in a standard shelter; their bulbs are 5 feet above the ground. The rain gage, also of standard pattern, is 8 feet east of the shelter, with its top 4 feet above the ground. The nearest building is a small storehouse, 30 feet east; there are no trees or other obstructions near.

Observations were made by Mr. W. A. Leslie from November 1, 1889, to September 30, 1890, when he was succeeded by the present observer.

The mean temperature has been obtained by dividing the sum of the maximum and the minimum readings by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, NOVEMBER 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	26	34	58	17	- 8	32	19	1.5	9	1.4	2.0	13.6	9.5	SW.
January.....	23	32	56	15	-21	30	16	1.8	9	2.0	1.7	16.5	16.0	SW.
February.....	25	34	55	16	-24	31	18	1.6	9	0.8	3.1	14.0	19.5	SW.
Winter mean.....	25	33		16				4.9	27	4.2	6.8	44.1		SW.
March.....	32	41	68	22	-13	41	25	1.8	11	1.6	2.2	17.2	12.0	SW.
April.....	41	52	76	30	8	45	37	1.4	9	0.3	0.6	10.0	7.0	SW.
May.....	49	62	98	37	20	56	44	1.8	9	1.4	3.5	1.8	3.0	N.
Spring mean.....	41	52		30				5.0	29	3.3	6.3	29.0		SW.
June.....	55	68	92	41	23	60	49	1.8	8	1.6	5.6	0.4	2.0	SW.
July.....	62	78	96	46	29	67	58	0.6	3	0.0	2.7	0.0	0.0	N.
August.....	63	78	95	47	30	67	57	0.9	4	0.4	0.8	0.0	0.0	N.
Summer mean.....	60	75		45				3.3	15	2.0	9.1	0.4		N.
September.....	53	67	90	39	21	59	48	1.2	6	1.3	0.8	0.0	0.0	SW.
October.....	44	56	79	32	17	47	40	1.5	6	0.2	0.6	2.4	4.0	SW.
November.....	34	44	70	24	-17	40	28	1.9	9	0.9	3.1	9.7	12.0	SW.
Fall mean.....	44	56		32				4.6	21	2.4	4.5	12.1		SW.
Annual mean.....	42	54	98	30	-24			17.8	92	11.9	26.7	85.6	19.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 3-6, 8-14, 19, 23, 31; Feb. 1-5, 10, 11, 16, 18, 20-25; Mar. 4, 5; Nov. 16; Dec. 2, 16, 25-30.	None.	1899	Jan. 3, 4, 6-8, 13; Feb. 2-7; Mar. 14; Dec. 14, 18-21, 27-29.	None.
1895	Jan. 7, 8, 15, 16, 24-29; Feb. 10-15; Mar. 14, 15; Nov. 22, 23; Dec. 16, 18, 22, 23, 29.	Do.	1900	Jan. 24-29; Feb. 14-18; Nov. 20-23; Dec. 28-31.	Do.
1896	Jan. 3, 5, 12-14; Feb. 4, 10; Mar. 2-5; Nov. 26-30.	Do.	1901	Jan. 1, 9, 10, 24, 30; Feb. 1-5, 7-13, 18; Dec. 12-15.	Do.
1897	Jan. 15, 17, 25-28; Feb. 17-21; Mar. 12, 13, 15, 17, 20-22, 30; Dec. 13.	Do.	1902	Jan. 23-31; Feb. 1-4, 13; Dec. 13-20, 28-30.	Do.
1898	Jan. 9, 10, 12-15, 21, 23-31; Feb. 1, 2; Mar. 8, 15, 22, 26; Nov. 21, 25, 26; Dec. 5-14, 23, 24, 29-31.	Do.	1903	Jan. 15-17, 28-31; Feb. 1, 3-8, 11-19; Apr. 11; Nov. 16-18; Dec. 14, 18, 19, 25-30.	May 31; July 20-22; Aug. 18.

OREGON.

Coast District: LINCOLN COUNTY. Station: NEWPORT.

J. E. MATTHEWS, Observer.

[Established by the U. S. Weather Bureau November 1, 1891. Latitude, 44° 39' N. Longitude, 120° 2' W. Elevation, 69 feet.]

The station is located within the limits of the city of Newport, which is situated on the east side of a peninsula formed by Yaquina Bay and the Pacific Ocean. The surrounding land is rolling and intersected by ravines. A hill about 50 feet high, upon which are fir trees, lies about 200 feet west of the station.

The maximum and the minimum thermometers are exposed in a shelter which is slatted on four sides and boarded on the top and bottom, with a door to the east. The thermometers are about 7 feet above the ground. The top of the rain gage, which is of standard pattern, is 4½ feet above the ground and situated 20 feet from the northwest corner of the observer's house. The thermometers and the rain gage have favorable exposures under all conditions of the weather.

Observations were made by Mr. A. E. Acklom from the date of the establishment of the station until the end of May, 1892. He was succeeded August 1, 1892, by the present observer.

Monthly mean temperatures were computed from the daily extremes.

Tabulated data are included within the period November 1, 1891, to December 31, 1903. The record is somewhat broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	46	53	73	40	20	49	45	10.5	21	6.1	11.7	0.0	0.0	SW.
January.....	45	52	77	38	17	47	43	9.8	20	10.8	13.2	0.6	1.0	SW.
February.....	45	51	74	38	12	49	41	8.6	20	2.8	12.6	0.5	2.0	SW.
Winter mean.....	45	52	.....	39	.....	.....	.....	28.9	61	19.7	37.5	1.1	.....	SW.
March.....	45	53	83	38	22	49	40	7.8	19	7.6	4.9	0.1	1.0	NW.
April.....	48	56	84	41	29	51	46	6.6	18	6.6	8.6	0.0	0.0	NW.
May.....	52	60	83	44	34	53	49	4.9	17	4.0	4.6	0.0	0.0	NW.
Spring mean.....	48	56	.....	41	.....	.....	.....	19.3	54	18.2	18.1	0.1	.....	NW.
June.....	55	63	95	48	40	58	52	2.4	13	2.4	1.4	0.0	0.0	NW.
July.....	57	65	94	49	39	60	56	0.8	5	0.8	0.6	0.0	0.0	NW.
August.....	58	66	88	51	38	60	55	1.4	6	1.1	4.2	0.0	0.0	NW.
Summer mean.....	57	65	.....	49	.....	.....	.....	4.6	24	4.3	6.2	0.0	.....	NW.
September.....	56	65	94	48	33	60	54	2.9	11	1.8	2.9	0.0	0.0	NW.
October.....	54	63	88	46	27	57	52	5.0	15	3.4	7.9	0.0	0.0	SW.
November.....	49	55	71	42	19	52	42	12.5	21	12.6	17.5	0.0	0.0	SW.
Fall mean.....	53	61	.....	45	.....	.....	.....	20.4	47	17.8	28.3	0.0	.....	SW.
Annual mean.....	51	58	95	44	12	.....	.....	73.2	186	60.0	90.1	1.2	2.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. missing; Feb. 1-3, 9-11, 21-23; Mar. 8, 20; Apr. 12; Nov. missing; Dec. 15, 24, 26, 28, 29.	Sept. 24.	1899	Jan. 1, 15; Feb. 1-7; Mar. 15, 22, 23, 25-27; Apr. 27; Oct. 19; Nov. 29, 30; Dec. 1.	None.
1895	Jan. 14, 20, 25-30; Feb. 2, 4, 6-10, 28; Mar. 5, 9, 14, 15, 21; Apr. 5; Nov. 25; Dec. 17, 28, 31.	July 10.	1900	Jan. 24; Feb. 14, 16; Mar. 5, 13; Apr. 9; Nov. 20-22; Dec. 30, 31.	Do.
1896	Jan. 14; Feb. 10; Mar. 2-4, 31; Apr. 3; Nov. 24-30.	June 26; July missing; Sept. 5.	1901	Jan. 1, 4, 30, 31; Feb. 1, 3, 7, 9, 18, 21; Dec. 11-13, 18.	Do.
1897	Jan. 13, 14, 26, 27; Feb. 13, 17, 19-21; Mar. 12, 13, 20, 21, 26, 29; Nov. 16, 18, 20; Dec. 7, 19, 22, 23.	None.	1902	Jan. 25-30; Mar. 24...	Do.
1898	Jan. 9, 10, 23-26; Feb. 6; Mar. 8, 16-18, 22, 23, 25; Apr. 3; Dec. 5, 30.	June 5.	1903	Feb. 1-3, 5, 6, 11-14, 16, 17; Mar. 5, 12, 16, 18; Apr. 10.	June 7.

OREGON.

Willamette Valley: LINN COUNTY. Station: ALBANY.

JOHN BRIGGS, Observer.

[Established by the Signal Service in January, 1889; discontinued December 31, 1898. Latitude, 44° 35' N. Longitude, 122° 50' W. Elevation, 224 feet.]

This station is located on the Willamette River in the central part of the valley of that name. To the east are the foothills of the Cascades, 15 miles distant, while 15 miles to the west the foothills of the Coast Range begin.

The maximum and minimum thermometers were of standard pattern, in a slatted box, which excluded the rain, while it admitted a free circulation of air. The box was attached to a post about 4 feet above the ground and some 20 feet from any building.

The rain gage was exposed in the open 10 feet from the instrument shelter. Its top was 12 inches above the ground.

The mean temperature was determined by obtaining the sum of the daily maximum and minimum temperatures and dividing it by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1898.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	41	47	63	37	18	45	39	7.8	17	6.6	13.2	2.4	9.0	S.
January.....	39	45	61	34	10	43	33	6.7	15	4.0	4.0	3.6	9.0	S.
February.....	42	49	68	36	11	47	38	5.3	12	1.0	7.7	2.6	6.0	S.
Winter mean.....	41	47		36				19.8	44	11.6	25.5	8.6		S.
March.....	46	55	78	38	9	52	43	4.7	16	2.3	3.4	1.7	5.5	S.
April.....	51	59	84	42	30	54	48	3.6	14	4.1	3.4	T.	0.3	N.
May.....	57	69	93	46	32	61	54	2.0	10	2.0	2.5	0.0	0.0	N.
Spring mean.....	51	61		42				10.9	40	9.4	9.3	1.7		N.
June.....	62	74	97	49	32	69	59	1.3	7	0.6	2.0	0.0	0.0	N.
July.....	67	82	103	51	39	70	64	0.3	2	T.	0.2	0.0	0.0	N.
August.....	67	82	101	51	42	70	64	0.4	2	1.2	1.2	0.0	0.0	N.
Summer mean.....	65	79		50				2.0	11	1.8	3.4	0.0		N.
September.....	60	72	97	48	32	63	58	2.0	8	1.7	2.2	0.0	0.0	N.
October.....	53	64	84	43	29	58	49	3.4	10	6.4	5.4	0.0	0.0	N.
November.....	46	53	72	39	23	50	44	0.1	15	3.4	7.5	T.	T.	S.
Fall mean.....	53	63		43				11.5	33	11.5	15.1	T.		N.
Annual mean.....	53	63	103	43	9			44.2	128	34.3	53.3	10.3	9.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1889, TO DECEMBER 31, 1898.

Year.	Minimum below 22°.	Maximum 90° or above.	Year.	Minimum below 22°.	Maximum 90° or above.
1889	None.....	June 2, 9, 10; July 2, 3, 8, 9, 18, 19, 21, 25, 27-29; Sept. 17.	1895	None.....	May 15; June 25-27; July 9-11, 21; Aug. 1, 2, 4-6.
1890	Jan. 3-8; Feb. 26, 27...	June 29, 30; July 22; Aug. 12, 13, 26.	1896	Oct., Nov., and Dec. missing.	June 25; July 8, 9, 14-20; Aug. 11, 12, 22, 23; Sept. missing.
1891	Mar. 2, 3.....	July 22-24; Aug. 21-23, 26-28; Sept. 1, 2.	1897	None.....	May 28; Aug. 3, 6, 14, 18-20.
1892	None.....	June 26, 27; Aug. 8, 18, 19, 21, 28-30.	1898	Dec. 11, 12.....	July 27-31; Aug. 1, 2, 5, 23, 24; Sept. 6.
1893	Jan. 27-31; Feb. 1, 2...	June 4; July 29-31; Aug. 26, 27, 29-31.			
1894	Jan. 5; Feb. 21.....	July 12, 14, 18; Aug. 1-3, 19, 22, 23, 25-28; Sept. 10.			

OREGON.

Central Plateau, Eastern Section: CROOK COUNTY. Station: PRINEVILLE.

C. I. WINNEK, Observer.

[Established by the United States Weather Bureau January, 1897. Latitude, 44° 18' N. Longitude, 120° 52' W. Elevation, 3,000 feet.]

Prineville is situated in a narrow valley near the central portion of the State. Toward the south and the southeast a series of buttes, about 400 feet high, rise abruptly above the valley, while toward the north the country, although rolling, rises gradually for 8 miles, when it reaches an elevation above the town of about 1,000 feet. The station is in the northeast part of the town.

The maximum and the minimum thermometers are exposed in a voluntary observer's regulation shelter, with louvered sides. The shelter is attached to the north side of a small one-story dwelling. A space 4 inches wide for free air circulation exists between the house and the back of the shelter. The door of the shelter opens toward the north. The bulbs of the thermometers are 5 feet above the ground.

The rain gage is 40 feet north of the instrument shelter and the top of the gage is 3 feet above the ground.

The mean temperature was calculated by dividing the sum of the readings of the maximum and minimum thermometers by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maximum.	Absolute maximum.	Mean of the minimum.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	37	51	76	23	- 5	45	27	0.8	4	0.1	1.8	1.1	4.0	SW.
January.....	35	48	76	22	- 9	38	33	0.6	4	0.4	1.2	2.1	3.0	SW.
February.....	36	48	73	23	-17	44	29	1.0	5	0.7	1.1	3.4	4.8	SW.
Winter mean.....	36	49		23				2.4	13	1.2	4.1	6.6		SW.
March.....	41	56	83	27	5	47	36	0.9	6	1.0	1.4	3.1	5.0	S.
April.....	48	66	92	30	12	50	40	0.8	3	0.6	0.5	T.	T.	SW.
May.....	55	76	96	35	21	59	48	0.8	4	1.6	1.0	0.0	0.0	SW.
Spring mean.....	48	66		31				2.5	13	3.2	2.9	3.1		SW.
June.....	59	81	98	38	23	62	57	0.6	2	0.3	2.5	T.	T.	NW.
July.....	64	86	105	42	29	66	60	0.3	2	0.1	0.0	0.0	0.0	SW.
August.....	63	84	99	43	31	67	60	0.3	2	0.0	0.3	0.0	0.0	SW.
Summer mean.....	62	84		41				1.2	6	0.4	2.8	T.		SW.
September.....	57	78	93	36	20	61	54	0.6	2	0.0	0.9	0.0	0.0	SW.
October.....	52	72	89	31	18	54	49	0.6	3	0.0	0.0	T.	T.	SW.
November.....	44	63	82	25	8	48	41	0.9	4	0.3	0.9	T.	T.	SW.
Fall mean.....	51	71		31				2.1	9	0.3	1.8	T.		SW.
Annual mean.....	49	67	105	31	-17			8.2	41	5.1	11.6	9.7	5.0	SW.

a Also NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY, 1897, TO OCTOBER, 1904.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1897	Jan. 20; Feb. 17; Mar. 8, 12.	Aug. 17-21.	1901	Jan. 1, 2, 6-10; Feb. 3-8; August not used.	July 3, 5-7, 16, 17, 19, 20; August not used.
1898	Jan. 5, 24, 25, 29, 31; Mar. 21, 25; Nov. 7; Dec. 6-9, 12-16; July, August, and September not used.	June 15, 16, 18; July, August, and September not used.	1902	Jan. 23-31; Feb. 1; April missing.	April missing; July 7-9; Aug. 2, 3, 11.
1899	Feb. 2-7; August not used.	June 22; July 3, 5-7, 25, 26, 28-30; August not used.	1903	February not used; March, April, May, and June missing.	February not used; March, April, May, and June missing.
1900	Feb. 12-14, 16; Nov. 20-23; Dec. 29-31.	June 12, 20; July 8, 10, 12, 19-22, 27-29.	1904	Feb. 9	June 29; Aug. 4-6, 8.

OREGON.

Central Plateau: GRANT COUNTY. Station: DAYVILLE.

J. CAMPBELL-MARTIN, Observer.

[Established by the U. S. Weather Bureau June 1, 1895. Latitude, 44° 30' N. Longitude, 119° 40' W. Elevation, about 2,500 feet.]

This station is located in a small basin three-fourths of a mile southeast of the village of Dayville and 1 mile south of the confluence of the South Fork River with the main John Day River. The station is entirely surrounded by hills and mountains of volcanic origin. The mountains rise to an altitude of from 3,000 feet to 8,000 feet or more.

The maximum and minimum thermometers are exposed in a standard Weather Bureau shelter attached to the porch of the observer's residence; their bulbs are 7 feet above the ground. The rain gage is also of standard Weather Bureau pattern and is fairly well exposed. The top of the rain gage is 2.9 feet above the ground.

The mean temperature is obtained by dividing the sum of the maximum and the minimum thermometer readings by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1895, TO MAY 31, 1904.

Month.	Temperature.								Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			
												Average depth.	Greatest depth in 24 hours.		
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	In.	
December.....	38	46	81	29	- 1	44	31	1.2	8	1.1	1.2	1.3	2.0	NW.	
January.....	36	44	65	27	- 5	40	30	1.4	8	1.2	2.5	4.5	5.0	SW.	
February.....	39	48	72	29	-10	44	32	1.5	9	0.5	1.8	3.1	5.5	SW.	
Winter mean.....	38	46		28				4.1	25	2.8	5.5	8.9		SW.	
March.....	42	53	76	1	8	49	37	1.4	9	0.6	2.2	3.5	7.0	SW.	
April.....	49	63	92	35	21	53	46	1.1	8	0.4	1.5	0.2	1.0	NW.	
May.....	54	70	94	40	28	58	51	1.4	9	2.3	1.3	0.0	0.0	NW.	
Spring mean.....	48	62		35				3.9	26	3.3	5.0	3.7		NW.	
June.....	62	77	100	47	30	65	58	0.4	4	0.4	0.1	0.0	0.0	NW.	
July.....	67	85	101	49	38	72	64	0.3	2	0.1	0.1	0.0	0.0	NW.	
August.....	67	85	105	49	36	71	62	0.4	3	0.1	1.2	0.0	0.0	NW.	
Summer mean.....	65	82		48				1.1	9	0.6	1.4	0.0		NW.	
September.....	58	75	95	42	26	62	57	0.7	5	0.2	0.3	0.0	0.0	NW.	
October.....	51	67	88	35	18	55	48	1.0	6	1.2	1.8	0.1	0.5	NW.	
November.....	42	53	80	31	-11	49	37	1.5	8	1.0	1.3	0.5	2.0	SW.	
Fall mean.....	50	65		36				3.2	19	2.4	3.4	0.6		NW.	
Annual mean.....	50	64	105	37	-11			12.3	79	9.1	15.3	13.2	7.0	NW.	

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JUNE 1, 1895, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1895	Nov. 5, 6, 23, 24; Dec. 22.	July 22, 23; Aug. 2, 5, 11, 12, 14.	1899	Feb. 2-7; Dec. 25.....	July 16, 17.
1896	Nov. 27-29.....	June 26-28; July 3-5, 7-11, 14-20; Aug. 13.	1900	Feb. 16; Nov. 21, 22; Dec. 30, 31.	June 20; July 10, 20, 21, 24, 29-31.
1897	Jan. 26, 27; Nov. 27....	May 29; July 11; Aug. 7, 15-23.	1901	Jan. 1; Feb. 9.....	July 20, 21, 30; Aug. 4-6, 13-15, 23.
1898	Jan. 24-26; Mar. 22; Dec. 6, 7, 10-13.	July 10-12, 15, 29-31; Aug. 1, 2, 7-13, 24, 25; Sept. 18.	1902	Jan. 25-27, 29, 31; Feb. 3.	July 20; Aug. 6.
			1903	Feb. 6, 13, 14.....	Aug. 18.

OREGON.

Eastern District: BAKER COUNTY. Station: BAKER CITY.

WILLIAM C. MCGUINNESS, Observer.

[Established July 1, 1899. Latitude, 44° 50' N. Longitude, 117° 50' W. Elevation, 3 449 feet.]

The station is near the center of the town of Baker City, Oreg. Ranges of foothills lie to the east, west, and south, varying in elevation from 100 to 300 feet. A valley about 25 miles long by 18 miles wide stretches to the north, through which flows Powder River. The valley is bounded on the west by a portion of the Blue Mountains, with peaks from 8,000 to 8,500 feet above sea level, and on the east by the Powder River Mountains, with about the same elevation. The Blue Mountains are about 10 miles distant and the Powder River Mountains about 75 miles, with foothills between the Powder Valley and the mountains.

The station is located in the Pollman Building, with the roof instruments on the Lynndale Building, adjacent thereto. Tabulated data are from whole period of observation, fourteen years—July 9, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.			Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.						
December.....	28	35	54	22	- 6	35	22	1.5	12	0.7	4.0	11.0	14.2	78	1.21	72	1.58	SE.	
January.....	26	33	51	18	-14	32	16	1.4	13	0.8	2.0	10.2	10.8	75	1.04	72	1.28	SE.	
February.....	28	36	59	20	-20	36	22	1.4	12	0.6	2.6	9.4	6.6	78	1.11	67	1.35	SE.	
Winter mean.....	27	35	.....	20	.....	.....	.....	4.3	37	2.1	8.6	30.6	.....	79	1.12	70	1.40	SE.
March.....	36	44	66	27	- 6	44	29	1.3	12	0.3	1.4	6.5	9.8	75	1.39	56	1.66	SE.	
April.....	44	55	83	34	18	48	40	1.0	9	0.3	0.4	2.1	4.8	70	1.66	42	1.77	SE.	
May.....	52	64	88	41	24	58	46	1.7	10	2.2	1.4	0.2	0.4	72	2.21	44	2.53	NW.	
Spring mean.....	44	54	.....	34	.....	.....	.....	4.0	31	2.8	3.2	8.8	.....	72	1.75	47	1.99	SE.
June.....	58	71	97	46	27	64	53	1.2	8	0.7	2.6	0.0	0.3	69	2.53	40	2.99	NW.	
July.....	66	81	101	51	36	72	62	0.4	3	0.3	1.8	0.0	0.0	59	2.58	29	2.89	S.	
August.....	66	81	101	51	35	71	61	0.4	4	0.3	0.4	0.0	0.0	59	2.58	31	3.19	NW.	
Summer mean.....	63	78	.....	49	.....	.....	.....	2.0	15	1.3	4.8	0.0	.....	62	2.56	33	3.02	NW.
September.....	56	70	93	42	24	61	52	0.8	6	0.5	0.1	0.0	T.	66	2.25	37	2.95	S.	
October.....	48	60	85	36	18	53	43	0.9	8	0.6	0.2	0.6	4.6	71	1.88	48	2.58	S.	
November.....	37	45	65	28	- 8	42	31	1.2	11	1.3	1.3	5.1	7.1	75	1.52	64	2.18	SE.	
Fall mean.....	47	58	.....	35	.....	.....	.....	2.9	25	2.4	1.6	5.7	.....	71	1.88	50	2.57	S.
Annual mean.....	45	56	101	34	-20	.....	.....	13.2	108	8.6	18.2	45.1	14.2	71	1.83	50	2.25	SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 3-6, 8, 9, 11; Feb. 1-4, 10, 20-23; Nov. 16; Dec. 15, 26-28.	None.	1899	Jan. 3, 4; Feb. 1-7, 11; Dec. 13, 14, 18-20, 22, 25, 27.	July 17.
1895	Jan. 1, 7, 15, 25-30; Feb. 11, 13, 14, 17; Mar. 14; Nov. 5, 6; Dec. 18, 22, 29.	Do.	1900	Jan. 28; Feb. 15, 16; Nov. 20-22; Dec. 30, 31.	July 24.
1896	Jan. 3, 11-14; Mar. 2; Nov. 26-30.	July 5.	1901	Jan. 1, 9, 10; Feb. 9, 10	None.
1897	Jan. 17, 25-27; Feb. 21; Mar. 12, 13, 22; Dec. 19-22.	Aug. 16, 19, 21-23.	1902	Jan. 23-31; Feb. 1-3; Dec. 17, 19.	July 20.
1898	Jan. 9-11, 14, 18, 21, 23-31; Feb. 2; Nov. 25; Dec. 6-13, 21-24, 30, 31.	July 11; Aug. 7-11.	1903	Jan. 19, 27-29; Feb. 1, 3-6, 11-18; Dec. 24-26.	July 21; Aug. 18.

OREGON.

Central Plateau, Eastern Portion: MALHEUR COUNTY. Station: BEULAH.

D. F. MURPHY, Observer.

[Established by Signal Service in September, 1889. Latitude, 43° 55' N. Longitude, 118° 10' W. Elevation, 3,290 feet.]

This station is situated in the northern portion of the Agency Valley at about half the distance of the gradual slope from the hills on the west to Warm Spring Creek on the east. The hills surrounding the valley rise to an altitude of about 5,000 feet.

The maximum and minimum thermometers are exposed in a shelter of the regulation pattern. It is located 50 feet south of the observer's house. The thermometer bulbs are 4 feet above the ground. The rain gage is of standard pattern and exposed 10 feet west of the instrument shelter and 50 feet from the observer's house, which is two stories in height. The top of the rain gage is 5 feet above the ground.

The mean temperature was obtained by dividing the sum of the maximum and the minimum thermometer readings by 2.

Record much broken.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	27	39	64	15	- 7	31	20	1.6	6	0.3	2.2	11.6	9.0	N.
January.....	24	35	57	12	-19	30	14	1.6	6	0.5	2.2	13.1	11.0	S.
February.....	28	40	63	16	-23	35	20	1.4	6	0.4	1.9	8.4	6.0	N.
Winter mean.....	26	38	.....	14	.....	.....	.....	4.6	18	1.2	6.3	33.1	.....	N.
March.....	37	49	73	24	3	41	33	1.1	6	0.1	0.7	3.3	6.0	SW.
April.....	45	60	86	29	14	50	39	0.9	4	0.1	1.8	0.6	1.5	SW.
May.....	53	71	97	36	19	58	48	1.1	5	1.4	1.4	0.2	1.0	SW., N.
Spring mean.....	45	60	.....	30	.....	.....	.....	3.1	15	1.6	3.9	4.1	.....	SW.
June.....	60	81	102	40	21	66	55	0.5	3	0.4	0.2	0.0	0.0	N.
July.....	68	90	107	46	28	72	64	0.2	1	0.1	0.0	0.0	0.0	N., SW.
August.....	67	89	106	45	28	74	62	0.2	1	T.	1.3	0.0	0.0	SW.
Summer mean.....	65	87	.....	44	.....	.....	.....	0.9	5	0.5	1.5	0.0	.....	N., SW.
September.....	56	77	101	35	17	61	47	0.5	2	0.2	0.8	0.0	0.0	N.
October.....	47	66	92	29	12	53	42	0.6	2	0.9	0.6	0.2	2.5	N.
November.....	36	50	78	22	5	41	33	1.4	6	1.4	0.6	2.3	4.0	N.
Fall mean.....	46	64	.....	29	.....	.....	.....	2.5	10	2.5	2.0	2.5	.....	N.
Annual mean.....	46	62	107	29	-23	.....	.....	11.1	48	5.8	13.7	39.7	11.0	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY, 1894, TO OCTOBER, 1904.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 2-8, 10, 16, 18; Feb. 1-4, 8-10, 12, 14, 16, 21-25; Mar. 3.	Aug. 1, 2, 8, 23-27.	1900	.....	June 20-24, 26-28; July 9, 10, 16, 19-23.
1895	Mar. 15, 16; Nov. 5, 6; Dec. 12-14, 16-19, 22, 23, 27, 29.	July 22; Aug. 2, 3, 5, 6, 11.	1901	Jan. 1, 9, 10, 30; Feb. 4, 9-12; Nov. 11; Dec. 7, 10-17, 19, 27, 29.	June 21; July 5-7, 10, 11, 14, 16-23, 27, 28-31; Aug. 1-9, 11-16, 22-24, 30.
1896	Jan. 4-6, 11-13, 24; Feb. 2.	July 4-11, 14-17.	1902	Jan. 12, 14, 15, 17, 20, 23, 25-31; Feb. 1-3; Nov. 4, 5; Dec. 5, 13- 19, 28-30.	June 7-10, 21-23; July 9-11, 13, 19-27, 30; Aug. 1-9, 11, 22, 23, 25, 26; Sept. 1-3, 7, 9.
1897	Nov. 27, 28; Dec. 3, 12, 15, 16, 19-22, 30, 31.	None.	1903	Jan. 5, 8-12, 15-19, 29, 31; Feb. 1-8, 11-22; Mar. 4, 6, 9; Nov. 17, 18; Dec. 23-28, 31.	May 31; July 19-22; Aug. 5, 7-10, 13, 15- 19; Sept. 1.
1898	Jan. 1-4, 7, 10-14, 16- 18, 20-31; Feb. 2, 8, 9; Mar. 22, 23, 28; Nov. 11, 24, 25; Dec. 6-13, 21-25, 30, 31.	July 7, 9-11, 15, 27-30; Aug. 1, 2, 7-13, 15, 24.	1904	Jan. 1, 3, 5-7, 19, 20, 24, 25; Feb. 8, 17, 1.	July 20, 21, 26; Aug. 1, 3, 5-8, 10, 11, 13-16, Sept. 6.
1899	Jan. 4, 5, 12-14; Feb. 2-7.	June 16-18; July 3, 4, 15-19, 26-29; Aug. 5.			

OREGON.

Coast District: COOS COUNTY. Station: BANDON.

GEORGE BENNETT, Observer.

[Established January, 1878; discontinued September 30, 1900. Latitude, 44° 5' N. Longitude, 124° 15' W. Elevation, 55 feet.]

The station was in the town of Bandon, which is situated on the south bank of the Coquille River, about one-half mile from its mouth. To the north and south the country is flat, to the west is the Pacific Ocean, and to the eastward is a comparatively level stretch for 3 miles, at which distance the foothills of the Coast Range begin. These mountains have an elevation of about 1,000 feet 6 miles east of the town.

After January, 1897, the instruments used were standard maximum and minimum thermometers and a rain gage. The temperature means, beginning January 1, 1897, were obtained by dividing the sum of the maximum and minimum temperatures by 2.

Prior to 1897 a private thermometer and rain gage were used, and observations were made at 7 a. m., 2 and 9 p. m.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1878, TO SEPTEMBER 30, 1890.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
December.....	° F. 47	° F. 52	° F. 64	° F. 43	° F. 28	° F. 50	° F. 44	In. 11.4	17	In. 6.3	In. 16.1	In. 0.0	In. 0.0	SW.
January.....	45	50	70	41	14	50	40	11.5	16	11.3	23.1	1.1	12.5	SW.
February.....	45	51	69	41	18	51	39	8.3	15	2.7	10.9	1.1	1.7	SW.
Winter mean.....	46	51	.....	42	.....	.....	.....	31.2	48	20.3	50.1	2.2	.....	SW.
March.....	47	52	74	42	24	52	41	7.7	14	7.2	18.5	0.6	4.5	N.
April.....	50	54	79	44	30	55	45	5.4	13	1.4	5.7	0.0	0.0	N.
May.....	53	59	85	49	37	58	50	3.7	12	1.0	1.6	0.0	0.0	N.
Spring mean.....	50	55	.....	45	.....	.....	.....	16.8	39	9.6	25.8	0.6	.....	N.
June.....	57	62	78	53	40	61	54	1.8	8	5.5	4.5	0.0	0.0	N.
July.....	58	64	79	54	38	62	53	0.5	3	0.1	0.0	0.0	0.0	N.
August.....	58	64	78	54	39	64	54	1.1	3	0.0	0.0	0.0	0.0	N., NW.
Summer mean.....	58	63	.....	54	.....	.....	.....	3.4	14	5.6	4.5	0.0	.....	N.
September.....	56	62	92	51	36	58	51	2.6	7	0.6	6.2	0.0	0.0	N.
October.....	52	59	89	48	32	56	47	5.2	10	6.4	9.8	0.0	0.0	N.
November.....	49	54	74	45	24	55	43	8.0	14	5.3	7.6	0.0	0.0	N.
Fall mean.....	52	58	.....	48	.....	.....	.....	15.8	31	12.3	23.6	0.0	.....	N.
Annual mean.....	51	57	92	47	14	.....	.....	67.2	132	47.8	104.0	2.8	12.5	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1900.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 5; Feb. 2, 10, 21; Apr. 12; Dec. 24.	None.	1898	Jan. 10, 21, 28; Mar. 17, 18, 22, 23, 31; Nov. 25; Dec. 11, 12.	None.
1895	Jan. 26-31; Mar. 11, 14; Apr. 5; Nov. 4, 24.	Do.	1899	Feb. 2-4, 6; Dec. 19...	Do.
1896	Jan. 12; Feb. 11; Mar. 2, 3, 31; Nov. 24, 27-29.	Do.	1900	Jan. 26; Nov. and Dec. missing.	Do.
1897	Jan. 10; Feb. 17; Dec. 22.	Do.			

OREGON.

Southwestern District: DOUGLAS COUNTY. Station: ROSEBURG.

THOMAS GIBSON, Observer.

[Established by Signal Service, U. S. Army, July 12, 1877. Latitude, 43° 13' N. Longitude, 123° 27' W. Elevation, 494 feet.]

This station is near the center of Roseburg, about three-fourths of the distance from the east bank of the South Umpqua River to the range of hills forming the eastern boundary of the town a quarter of a mile away. The elevation of the hills in this vicinity is from 250 to 500 feet, at an average distance of 1½ miles.

The dry and wet bulb, maximum and minimum thermometers, and thermograph are exposed in a single slat-work standard shelter, 56 feet above ground. The roof is higher than the surrounding buildings. The anemometer, anemoscope, snow gage, and tipping-bucket rain gage are situated on the roof, 30 feet west of the shelter. The elevation of the rain and snow gages is 48 feet above the ground and that of the anemometer cups 67 feet.

Tabulated data are from the following periods of observation: Snowfall, nineteen years; humidity, fifteen years. Remainder of data is from the full period of observation, twenty-six years, July 15, 1877, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Grs.	P. ct.	Grs.	
December.....	42	48	66	36	7	48	37	6.1	18	5.7	12.0	1.0	7.5	93	2.55	83	2.83	S.
January.....	41	47	71	35	- 6	46	35	5.9	18	3.0	3.6	3.2	8.1	92	2.43	82	2.70	S.
February.....	43	50	74	36	2	49	34	4.7	13	1.2	11.5	3.0	10.5	92	2.43	70	2.57	NW.
Winter mean.....	42	48	.....	36	.....	.....	.....	16.7	49	9.9	27.1	7.2	.....	92	2.47	78	2.70	S.
March.....	47	57	81	38	18	53	41	3.7	16	1.7	4.1	1.8	5.7	90	2.56	61	2.76	SW.
April.....	51	61	90	41	26	56	46	2.5	14	2.9	1.5	0.0	T.	89	2.83	53	2.94	NW.
May.....	57	68	102	46	30	60	52	2.0	12	2.3	4.0	0.0	0.0	90	3.30	51	3.46	NW.
Spring mean.....	52	62	.....	42	.....	.....	.....	8.2	42	6.9	9.6	1.8	.....	90	2.90	55	3.05	NW.
June.....	61	72	101	49	36	65	55	1.2	7	T.	1.9	0.0	0.0	89	3.63	47	4.00	NW.
July.....	66	80	102	52	40	71	63	0.4	2	T.	0.8	0.0	0.0	87	3.94	38	4.03	NW.
August.....	66	80	104	53	40	70	62	0.4	2	T.	0.4	0.0	0.0	87	3.94	38	4.03	NW.
Summer mean.....	64	77	.....	51	.....	.....	.....	2.0	11	T.	3.1	0.0	0.0	88	3.84	41	4.02	NW.
September.....	61	74	99	48	35	66	57	1.1	6	0.6	1.0	0.0	.....	91	3.71	46	3.79	NW.
October.....	54	64	91	44	22	59	48	2.6	12	2.8	3.0	0.0	0.0	95	3.36	61	3.75	NW.
November.....	46	54	74	39	14	51	40	4.3	14	2.2	3.1	0.1	0.0	92	2.82	76	3.32	S.
Fall mean.....	54	64	.....	44	.....	.....	.....	8.0	32	5.6	7.1	0.1	.....	93	3.30	61	3.62	NW.
Annual mean.....	53	63	104	43	- 6	.....	.....	34.9	134	22.4	46.9	9.1	10.5	91	3.13	59	3.35	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 90° or above.	Year.	Minimum below 22°.	Maximum 90° or above.
1894	Jan. 5; Feb. 26; Dec. 27, 28.	July 18; Aug. 1, 22, 26-28; Sept. 9, 10.	1898	Dec. 10-12.....	July 27-31; Aug. 1, 2, 5, 9, 10, 23, 24; Sept. 6, 7.
1895	Jan. 28, 29; Mar. 15; Nov. 6, 23, 25.	June 26, 27; July 9, 10; Aug. 5.	1899	Feb. 2-5.....	July 25-27; Sept. 10, 11, 18-25.
1896	Mar. 3; Nov. 27-29....	June 25; July 9, 10, 14-20; Aug. 11, 22, 23; Sept. 4, 5.	1900	None.....	July 19-21, 29, 30.
1897	None.....	Apr. 15; May 12, 28; Aug. 3, 6, 14-16, 18-22; Sept. 18, 25.	1901	Feb. 9.....	Aug. 3-6, 14-16.
			1902	Jan. 25, 26, 29.....	July 18, 19, 25; Aug. 5-10; Sept. 6, 9, 11.
			1903	Feb. 13, 14.....	June 6-8; Aug. 19; Sept. 3.

OREGON.

Plateau District, Eastern Section: LAKE COUNTY. Station: SILVER LAKE.

L. N. KELSAY, Observer.

[Established by Signal Service in October, 1889. Latitude, 43° 08' N. Longitude, 121° 04' W. Elevation, 4,700 feet.]

This station is near the center of the village of Silver Lake, which lies in a valley or basin about 14 miles long by 14 miles wide. To the east and north is a low desert somewhat broken by hills, while to the south and west are mountains sparsely forested with pine trees. These mountains form the watershed that drains into Silver Lake.

The instruments at this station consist of a standard maximum and minimum thermometer and a standard rain gage, but no instrument shelter has ever been used. The temperature record therefore is considered somewhat unreliable, but the rainfall record is thought to be good.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Direction of prevailing wd.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	41	66	19	-11	35	24	1.2	5	0.4	1.7	5.6	4.0	SW.
January.....	29	40	69	17	-28	36	20	0.8	4	0.3	1.4	5.4	9.0	SW.
February.....	31	43	64	19	-30	37	24	1.0	5	0.3	0.2	6.4	11.5	SW.
Winter mean.....	30	42	.....	18	.....	.....	.....	3.0	14	1.0	3.3	17.4	.....	SW.
March.....	36	48	73	23	-4	43	30	1.0	5	0.2	2.6	4.0	6.0	SW.
April.....	43	59	86	27	8	47	36	0.9	5	0.2	1.0	3.3	8.0	SW.
May.....	50	67	94	32	16	56	43	1.2	5	1.9	0.5	0.5	2.0	SW.
Spring mean.....	43	58	.....	27	.....	.....	.....	3.1	15	2.3	4.1	7.8	.....	SW.
June.....	56	75	94	36	13	60	51	0.8	4	0.8	T.	0.0	0.0	SW.
July.....	62	85	104	39	25	67	60	0.6	3	0.2	0.0	0.0	0.0	SW.
August.....	62	86	101	38	20	67	57	0.2	2	0.0	0.4	0.0	0.0	SW.
Summer mean.....	60	82	.....	38	.....	.....	.....	1.6	9	1.0	0.4	0.0	.....	SW.
September.....	53	75	93	31	13	56	51	0.5	4	0.2	0.4	0.0	0.0	SW.
October.....	45	63	88	27	10	51	41	1.1	5	0.6	1.4	0.4	0.8	SW.
November.....	36	50	77	23	-32	41	27	1.1	5	2.0	0.8	4.0	15.5	SW.
Fall mean.....	45	63	.....	27	.....	.....	.....	2.7	14	2.8	2.6	4.4	.....	SW.
Annual mean.....	44	61	104	28	-32	.....	.....	10.4	52	7.1	10.4	29.6	15.5	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1896, TO OCTOBER 31, 1904.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1896	Jan. 5, 11, 12; Mar. 2-5, 15, 31; Apr. 21, 22; Nov. 6, 24-29.	Aug. 16-22.	1900	Jan. 25-28; Apr. 8; Nov. 20, 22; Dec. 28, 30, 31.	July 21, 29, 30; Aug. 1.
1897	Jan. 2, 12, 15, 17; Feb. 17-21; Mar. 11, 12, 20, 30; Oct. 15, 22; Nov. 3; Dec. 2, 3, 21-23.		1901	Jan. 1, 6, 7, 9, 10, 17, 18, 27-30; Feb. 1, 5, 7-12, 18; Mar. 23; Dec. 7, 10, 13, 15, 16, 19-21, 29.	
1898	Jan. 7, 9, 10, 12, 23-31; Mar. 10, 15, 18, 22, 23, 25-27; Apr. 3, 4; Dec. 2, 3, 6-13, 21-23.		1902	Jan. 11, 12, 14, 15, 21-29, Mar. 28, 29; Dec. 14, 16-18, 28, 29.	
1899	Jan. 12; Feb. 2-6; Mar. 10; Nov. 7-9, 11-14, 25, 26; Dec. 18, 19, 23.	July 17.	1903	Jan. 12-16, 28, 29; Feb. 1-6, 12-16, 19, 20; Mar. 4, 9.	Aug. 4, 6, 14, 17.
			1904	.....

OREGON.

Southern Plateau: HARNEY COUNTY. Station: HAPPY VALLEY (P. O., DIAMOND).

J. H. NEAL, Observer.

[Established by the Signal Service April 1, 1890; discontinued September 30, 1900. Latitude, 43° 03' N. Longitude, 118° 40' W. Elevation, 4,200 feet.]

This station was in the country in a valley which extends north and south. The valley is not more than 200 yards wide where the station was located, but the slopes on either side are gentle. To the east the rise is very slight for 4 miles, when the incline becomes steeper, and 15 miles distant it reaches an altitude of 2,000 feet above the valley. To the west the hill reaches a height of 300 feet at a distance of 1½ miles from the station.

The maximum and minimum thermometers were exposed in a regulation shelter. It was fastened to a post 7 feet above the ground.

The rain gage was of standard pattern and was located 60 feet east of the observer's house, and 30 feet from some trees. The top of the gage was 5 feet above the ground.

Mean temperatures were obtained by dividing the sum of the maximum and the minimum temperatures by 2

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1890, TO SEPTEMBER 30, 1900.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
December.....	30	41	59	18	-10	37	24	1.3	8	2.1	0.9	7.8	10.0	SW.
January.....	29	40	60	18	-13	35	20	1.2	8	0.7	1.7	5.6	6.0	SW.
February.....	31	43	67	19	-22	36	24	1.4	9	0.5	1.8	7.8	8.0	SW.
Winter mean.....	30	41	.....	18	.....	.....	.....	3.9	25	3.3	4.4	21.2	.....	SW.
March.....	36	48	72	23	3	43	29	1.4	8	0.3	1.5	7.5	6.0	SW.
April.....	44	59	85	34	12	46	40	1.6	9	1.4	1.2	4.6	6.0	NW.
May.....	50	66	88	35	17	56	45	2.0	9	1.9	3.2	0.9	3.3	NW.
Spring mean.....	43	58	.....	31	.....	.....	.....	5.0	26	3.6	5.9	13.0	.....	NW.
June.....	57	74	93	39	22	60	54	3.9	6	0.0	2.7	0.0	0.1	NW.
July.....	64	84	99	44	26	67	59	0.4	3	0.2	0.5	0.0	0.0	W.
August.....	63	83	102	43	28	66	57	0.4	3	0.1	0.3	0.0	0.0	W.
Summer mean.....	61	80	.....	42	.....	.....	.....	4.7	12	0.3	3.5	0.0	.....	W.
September.....	54	74	92	35	17	58	50	0.9	5	2.3	0.8	0.0	0.5	SW.
October.....	45	63	86	27	9	48	41	0.8	5	0.0	1.7	0.9	4.0	SW.
November.....	37	51	74	24	-31	42	30	1.4	8	0.3	0.2	3.6	5.0	SW.
Fall mean.....	45	63	.....	29	.....	.....	.....	3.1	18	2.6	2.7	1.5	.....	SW.
Annual mean.....	45	60	402	30	-31	.....	.....	16.7	81	9.8	16.5	38.7	10.0	SW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO SEPTEMBER 30, 1900.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 4-6, 8, 9, 31; Feb. 1-4, 10, 11, 14, 16, 21-25; Nov. 16, 22; Dec. 1, 2, 13-15, 24-31.	Aug. 2.	1898	Jan. 1, 9-14, 20, 21, 23-31; Feb. 2; Mar. 10-22; Nov. 9, 11, 25, 26; Dec. 5-13, 23, 24, 29, 30.	July 28, 30; Aug. 9-12.
1895	Jan. 7, 8, 17, 19, 20, 25-29; Feb. 11, 15; March, 13-15, 30; Nov. 3-7, 12, 22, 23, 24; Dec. 13, 21-23, 28, 29, 31.	July 22-24; Aug. 2, 3, 6, 11, 15.	1899	Jan. 8, 9, 13; Feb. 2-6; Oct. 11; Dec. 14, 18-21, 25, 27, 28.	July 16.
1896	Jan. 3-5, 11, 12; Mar. missing; Nov. 6, 25-30.	July 4, 9-11, 15.	1900	Jan. 25, 26; Feb. 14, 16.	July 20, 29, 30.
1897	Jan. 2, 9, 12, 14, 15, 17, 18, 26, 27; Feb. 17, 18, 21-23; Mar. 11-13, 17, 21, 22; Nov. 15, 26, 28; Dec. 3, 19-24.	Aug. 14, 17-20, 23.			

OREGON.

Southwestern District: JACKSON COUNTY. Station: ASHLAND.

F. H. CARTER, Observer.

[Established by Signal Service January 1, 1884; discontinued by Signal Service October 31, 1889; reestablished as a voluntary station by the Signal Service December 1, 1889. Latitude, 42° 12' N. Longitude, 122° 28' W. Elevation, 1,940 feet.]

Ashland is situated near the middle of a valley about 1½ miles wide. This valley trends in a southwesterly direction, and is flanked on both sides by hills rising to a height of from 800 to 1,200 feet above the valley.

The maximum and minimum thermometers were moved from the central portion of the city to its eastern limits on December 1, 1889. The shelter is the regulation Weather Bureau pattern used at that time, and is located 120 feet south of the observer's house. Fifty feet north of the shelter is an oak tree about 30 feet high. The thermometers are 7 feet above the ground.

The rain gage is of standard Weather Bureau pattern, and is attached to one corner of the instrument shelter, so that the top of the gage is 7 inches above the top of the shelter and about 9 feet above the ground.

The mean temperatures have been obtained by dividing the sum of the maximum and the minimum readings by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1884, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	39	47	66	31	— 7	45	32	3.1	13	1.6	3.3	3.6	9.0	NW.
January.....	38	46	66	30	— 3	43	30	2.5	14	2.9	2.4	4.8	8.5	NW.
February.....	41	51	71	32	— 4	46	33	2.6	12	0.5	4.6	4.4	5.2	NW.
Winter mean.....	39	48	.....	31	.....	.....	.....	8.3	39	5.0	10.3	12.8	.....	NW.
March.....	45	56	80	34	20	53	38	2.0	13	1.5	0.1	3.9	5.5	NW.
April.....	50	63	89	37	22	57	45	1.4	11	0.4	1.5	0.8	2.5	NW.
May.....	57	71	101	42	25	70	51	1.7	10	1.3	3.7	T.	0.9	NW.
Spring mean.....	51	63	.....	38	.....	.....	.....	5.1	34	3.2	5.3	4.7	.....	NW.
June.....	62	77	103	47	32	74	58	1.3	7	0.5	2.4	0.0	0.0	NW.
July.....	69	87	108	50	36	75	65	0.5	2	0.3	0.0	0.0	0.0	NW.
August.....	69	86	106	51	38	73	63	0.4	2	0.1	0.0	0.0	0.0	NW.
Summer mean.....	67	83	.....	49	.....	.....	.....	2.2	11	0.9	2.4	0.0	.....	NW.
September.....	61	78	102	45	27	71	58	0.8	4	0.7	1.2	0.0	0.0	NW.
October.....	54	68	93	40	23	59	49	1.4	8	0.0	1.5	0.0	0.0	NW.
November.....	45	55	78	34	15	50	39	2.4	11	1.1	8.0	1.1	7.5	NW.
Fall mean.....	53	67	.....	40	.....	.....	.....	4.6	23	1.8	10.7	1.1	.....	NW.
Annual mean.....	52	65	108	39	— 4	.....	.....	20.2	107	10.9	28.7	18.6	9.0	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1884, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 95° or above.	Year.	Minimum below 22°.	Maximum 95° or above.
1884	Jan. 5, 6, 18; Feb. 2, 10, 11, 13, 16, 21; Mar. 3; Dec. 24.	July 18; Aug. 1, 23, 25-29; Sept. 9.	1889	Feb. 2-6.....	July 13, 26, 27; Sept. 10, 11.
1895	Jan. 7, 25-29; Feb. 4; Mar. 15; Nov. 4, 6, 23-25; Dec. 18, 21, 22, 25, 28, 29.	June 25-27; July 9-11, 23; Aug. 1, 4, 5, 14.	1900	Nov. 20; Dec. 31.....	July 19, 20, 28-30.
1896	Nov. 27-29.....	June 25; July 8-11, 13-21; Aug. 11, 12, 22, 23; Sept. 4.	1901	Jan. 1, 7, 10; Feb. 1, 2, 8-10; Dec. 12-16.	Aug. 3-6, 14-17.
1897	Jan. 26; Feb. 21; Mar. 30; Nov. 26.	May 28; July 10, 11; Aug. 3, 6, 7, 13-22.	1902	Jan. 22, 25-29; Dec. 17, 18, 28, 29.	July 18-20, 23-25; Aug. 5-10; Sept. 9, 10.
1898	Jan. 10, 11, 24, 26-29; Mar. 16, 22, 23, 25; Nov. 11; Dec. 12, 22, 23, 29.	July 2, 26-31; Aug. 1, 2, 5, 6, 8-11, 14, 23, 24; Sept. 6, 7.	1903	Jan. 12, 13; Feb. 1, 2-6, 13, 14; Dec. 29, 30.	June 6-8.

OREGON.

Southern Plateau: LAKE COUNTY. Station: LAKEVIEW.

A. Y. BEACH, Observer.

[Established by the Signal Service January 1, 1884, and discontinued October 13, 1888; reestablished as a voluntary station by the Signal Service June 1, 1890. Latitude, 40° 12' N. Longitude, 120° 12' W. Elevation, 5,000 feet.]

This station is situated near the center of Lakeview, which lies close to high hills and at the mouth of a canyon. The country is open in every direction but toward the east.

The maximum and minimum thermometers are exposed in a standard shelter located upon a shed one story high and 35 feet north of a two-story building occupied by the observer. The rain gage, of standard pattern, is within 2 feet of the shelter. No other buildings are near.

The mean temperature has been calculated by dividing the sum of the maximum and minimum readings by 2.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1884, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.						Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		
												Average depth.	Greatest depth in 24 hours.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	
December.....	30	41	65	20	-13	37	23	2.2	8	1.7	6.4	13.7	12.0	S.
January.....	28	39	61	18	-24	36	20	2.4	10	1.4	2.0	18.1	12.0	S.
February.....	29	40	74	19	-22	44	19	2.2	9	1.1	1.6	15.4	19.0	S.
Winter mean.....	29	40	.....	19	.....	.....	.....	6.8	27	4.2	10.0	47.2	.....	S.
March.....	36	47	73	24	-2	46	28	1.7	10	0.1	1.3	10.4	10.0	S.
April.....	43	55	82	31	9	50	38	1.4	8	0.1	2.2	5.4	7.0	S.
May.....	51	66	93	37	17	58	45	1.7	7	1.7	2.0	1.0	3.0	S.
Spring mean.....	43	56	.....	31	.....	.....	.....	4.8	25	1.9	5.5	16.8	.....	S.
June.....	58	74	100	43	25	62	55	1.2	4	0.2	0.7	T.	0.5	S.
July.....	66	84	102	49	30	71	63	0.3	1	0.1	0.1	0.1	0.8	S.
August.....	66	85	102	48	24	71	59	0.3	2	T.	T.	0.0	0.0	S.
Summer mean.....	63	81	.....	47	.....	.....	.....	1.8	7	0.3	0.8	0.1	.....	S.
September.....	57	73	100	40	14	67	48	0.7	3	T.	2.0	T.	0.2	S.
October.....	49	63	95	34	18	58	42	0.9	4	1.0	3.8	1.6	6.0	S.
November.....	38	50	83	27	-14	46	31	2.0	8	1.3	2.5	4.4	6.0	S.
Fall mean.....	48	62	.....	34	.....	.....	.....	3.6	15	2.3	8.3	6.0	.....	S.
Annual mean.....	46	60	102	32	-24	.....	.....	17.0	74	8.7	24.6	70.1	19.0	S.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 95° or above.	Year.	Minimum below 10°.	Maximum 95° or above.
1894	Jan. 1-6, 8, 9, 17, 30, 31; Feb. 1-3, 5-16, 18-23; Dec. 11, 12, 20-25, 29-31.	None.	1899	Feb. 1-5; Dec. 8, 12-14, 17-19, 23-25, 28.	July 18.
1895	Jan. 1, 6, 7, 19, 23-31; Feb. 1-9; Dec. 16, 19-27.	Aug. 5.	1900	Dec. 30, 31.....	None.
1896	Jan. 3, 4, 11-13; Feb. 2; Nov. 25-28.	July 4, 8-11, 15, 18.	1901	Jan. 8, 9; Feb. 1, 8-11.	July 22-25, 29, 30; Aug. 3-6, 13.
1897	Jan. 1, 16; Feb. 15, 19-21; Nov. 24; Dec. 19-21.	Aug. 18.	1902	Jan. 24-29; Feb. 2; Dec. 13, 15-18, 27, 28.	July 20, 24; Aug. 3, 4, 6, 8, 9.
1898	Jan. 9-12, 17, 20, 22-30; Feb. 21; Nov. 24; Dec. 10, 11, 15, 20-24, 28-30.	July 28-31; Aug. 1, 9-13.	1903	Jan. 27, 31; Feb. 1-5, 11-17, 20; Apr. 10; Nov. 15, 16.	Aug. 7-9.

CALIFORNIA.

By ALEXANDER G. McADIE,
Professor of Meteorology.

CALIFORNIA.

California is one of the most remarkable States in the Union in the matter of climate. Within short distances extremely diversified climatic conditions may be found. The State extends from the Oregon line, latitude 42° north, to the Mexican boundary on the south, latitude $32^{\circ} 40'$ north. Its mean length is therefore approximately 800 miles. The average width of the State is about 200 miles and its area 155,980 square miles. The coast line of the State corresponds in position to that portion of the Atlantic coast extending from Boston to Savannah. This of itself would indicate a wide range of climatic conditions. There are but few rivers emptying into the Pacific, notwithstanding the presence of extended and lofty mountain ranges. In both hydrography and topography there is little resemblance between the Atlantic and Pacific seabords. The State is naturally divided by the Tehachapi Mountains, north of which the ranges have a north and south trend, while south of Tehachapi the trend is decidedly east and west. In the northern part of the State a vast inland valley is formed by the coast ranges on the west and the Sierra Nevada on the east. The northern end of this valley, known as the Sacramento, is drained by the Sacramento River and its tributaries. The southern half of this valley is called the San Joaquin, so named from the river which, with its tributaries from the southern half of the Sierra, drains this portion of the great basin. The Sacramento and San Joaquin rivers unite about 40 miles east of San Francisco, forming Suisun Bay; this last is connected by Straits of Carquinez with San Pablo, which in turn empties into the Bay of San Francisco; and this, through the Golden Gate, is connected with the Pacific Ocean. The mountain ranges play an important rôle in modifying the climatic conditions, and it is not unusual to find, especially in the San Francisco Bay district, marked differences in temperature and air movement, as well as in humidity and sunshine, on different flanks of the mountains and foothills. The highest and lowest lands in the United States, excluding Alaska, are in California. Mount Whitney has an elevation of 14,515 feet (4,425 meters); Mount Shasta 14,380 feet (4,383 meters). There are at least 43 mountain peaks with elevations exceeding 10,000 feet. On the other hand, at Salton and Volcano, in Colorado Desert, the depression is 263 feet below sea level. Death Valley, about 75 miles long and 6 miles wide, lies in southeastern California, just north of the great Mohave Desert.

Temperature.—Temperature varies greatly with different portions of the State. In the Colorado Desert, in the southern portion of the State, shade temperatures as high as 130° F. (54° C.) have been recorded. Mean monthly temperatures not much below 100° F. (38° C.) frequently occur at Volcano, Salton, Indio, Mammoth Tank, and in other places in the great arid regions of southern California, and particularly in the Valley of the Colorado. In the Sierra, just north of Lake Tahoe, temperatures as low as -30° F. (-34° C.) have occurred. During the winter of 1898 a minimum thermometer exposed on one of the high Sierra peaks, Mount Lyell, recorded -17° F. (-27° C.). During the same period the temperature at Bodie reached a minimum of -30° F. (-34° C.).

The coast line of nearly 1,000 miles shows a difference of but 10° F. in the mean annual temperatures of its northern and southern limits. At Eureka the temperature is 51° F. (11° C.); at San Francisco, 56° F. (13° C.), and at San Diego 61° F. (16° C.).

That the coast climates are very equable is shown by the following mean monthly departures. At Eureka the mean January temperature is 46° , or a departure of 5° from the annual mean; at San Francisco the mean January temperature is 50° , or a departure of 6° from the annual mean, and at San Diego the mean January temperature is 54° , or a departure of 7° from the annual mean.

Similarly for the month of July, the temperature at Eureka is 56° , or 5° above the annual; at San Francisco, 59° , or 3° above the annual, and at San Diego 68° , or 7° above the annual.

The highest mean annual temperature found in the Colorado Desert is about 78° , and the lowest mean annual temperature for stations in the Sierra (Summit, for example) is 42° , or a total annual range of 36° .

The absolute range is 160° F. (89° C.) viz, from 130° F. (54° C.) to -30° F. (-35° C.).

Precipitation.—The mean annual rainfalls, as might be expected, vary from 1 inch to 75 inches. At Mammoth Tank for twenty-three years the mean annual rainfall is 1.81 inches, but here and at other stations there have been years when the rainfall did not exceed a trace.

At Upper Mattole the average annual rainfall is 81 inches, and in individual years rainfalls approximating 100 inches have occurred. The following are some single-year rainfalls: Laporte, 120 inches, 1896; 101 inches, 1898. Bowman Dam, 119 inches, 1884; 110 inches, 1896. Delta, 111 inches, 1889; 100 inches, 1896. Upper Mattole, 102 inches, 1896; 101 inches, 1889. Edmanton, 102 inches, 1896. Snowfall is confined in general to the central and northern portion of the State, and to the mountains of the south. At Summit an annual snowfall of 697 inches has been reported.

Wind.—The general movement of the air over the State is from west and north, with strong southeasterly indrafts during the months of November, December, January, and February, whenever marked cyclonic disturbances approach the State from

the northwest. The general movement of the air in California is decidedly modified and certainly, in the lowermost strata, almost entirely controlled by the topography. Particularly interesting are the accentuated movements in the great valleys, as shown in the well-known "northers" of May and June. The prevailing westerly winds, wherever allowed access to the interior through gaps in the Coast Range, are greatly intensified, and exhibit in both frequency and duration a well-marked relation to the temperatures prevailing in the interior.

One of the most trying climatic conditions prevailing in California is the so-called "norther" or hot north wind, which, blowing in the great valleys, is both injurious to ripening crops and irritating to man and beast. May, June, and July are the months of greatest frequency. The condition is as a rule associated with the presence of an area of high pressure over the North Pacific Ocean and a deepening of the usual summer "low" over southeastern California and the Valley of the Colorado. Temperatures of 110° F. (43° C.) or more occur under these conditions. As these brisk northerly winds are very dry and dust laden, ripe fruit and wheat are seriously injured, while human beings and stock suffer greatly because of the irritating effects of the "norther."

In southern California a somewhat similar condition is known as the "Santa Ana." In all of these cases the air has been dynamically heated and dried, either by decensional movement, as when flowing down the mountains, or by horizontal compression and subsequent movement over superheated plains and deserts.

Frost.—Frosts are frequent in California and, notwithstanding statements often made that certain places are free from frosts, the records of this office bear out the statement that no portion of the State can be considered as free from frost. Elaborate frost tables, giving the latest and earliest killing frosts, have been published in the annual summaries of the California section of the climate and crop service. Killing frosts occur every month in the year at some of the elevated northern stations.

Thunderstorms.—Thunderstorms are comparatively rare in California and, as a rule, are not violent. Loss of life by lightning in California is extremely rare. In summer afternoons, in the mountain districts, brief thunderstorms occur.

Local storms are seldom severe. Tornadoes are practically unknown. Sandstorms, especially near the desert section, are severe and relatively frequent.

LIST OF COUNTIES AND CLIMATOLOGICAL STATIONS.

County.	Station.	District.	Page.	County.	Station.	District.	Page.
Alameda.....	Livermore.....	Central coast.....	990	Placer.....	Summit.....	Sierra.....	984
Alpine (<i>see</i> Summit).....		Sierra Nevada.....		Plumas.....	La Porte.....	do.....	982
Amador (<i>see</i> Sacramento).....		Foothill.....		Riverside.....	Salton.....	Colorado Desert.....	1005
Butte.....	Chico.....	Great Valley.....	981	Sacramento.....	Sacramento.....	Great Valley.....	987
Calaveras (<i>see</i> Sacramento).....		Foothill.....		San Benito.....	Hollister.....	Coast Valley.....	994
Colusa (<i>see</i> Davisville).....		Great Valley.....		San Bernardino.....	Needles.....	Mohave Desert.....	1004
Contra Costa (<i>see</i> San Francisco).....		Bay district.....		do.....	Redlands.....	Southern California.....	1003
Del Norte (<i>see</i> Eureka).....		North coast.....		San Diego.....	San Diego.....	South coast.....	1006
El Dorado (<i>see</i> Summit).....		Sierra.....		San Francisco.....	San Francisco.....	Bay district.....	989
Fresno.....	Fresno.....	Great Valley.....	995	San Joaquin (<i>see</i> Fresno).....		Great Valley.....	
Glenn (<i>see</i> Chico).....		do.....		San Luis Obispo.....	San Luis Obispo.....	South coast.....	990
Humboldt.....	Eureka.....	North coast.....	977	San Mateo (<i>see</i> San Francisco).....		Bay district.....	
Inyo.....	Independence.....	East Sierra.....	996	Santa Barbara.....	Santa Barbara.....	South coast.....	1001
Kern.....	Bakersfield.....	Great Valley.....	1000	Santa Clara.....	San Jose.....	Bay district.....	991
King (<i>see</i> Fresno).....		do.....		Santa Cruz.....	Santa Cruz.....	Central coast.....	993
Lake (<i>see</i> Ukiah).....		Coast Valley.....		Shasta.....	Redding.....	North Sierra.....	978
Lassen.....	Susanville.....	Northeast.....	979	Sierra (<i>see</i> Summit).....		Sierra.....	
Los Angeles.....	Los Angeles.....	Southern coast.....	1002	Siskiyou.....	Sisson.....	Siskiyou.....	975
Madera (<i>see</i> Fresno).....		Great Valley.....		Solano (<i>see</i> Sacramento).....		Bay district.....	
Marin (<i>see</i> San Francisco).....		Bay district.....		Sonoma (<i>see</i> San Francisco).....		do.....	
Mariposa (<i>see</i> Merced).....		Sierra.....		Stanislaus (<i>see</i> Merced).....		Great Valley.....	
Mendocino.....	Ukiah.....	Coast Valley.....	983	Sutter (<i>see</i> Sacramento).....		do.....	
Merced.....	Merced.....	Great Valley.....	992	Tehama.....	Red Bluff.....	do.....	980
Modoc.....	Cedarville.....	Extreme north-east.....	976	Trinity (<i>see</i> Redding).....		North Coast Range.....	
Mono (<i>see</i> Summit).....		Sierra.....		Tulare.....	Visalia.....	Great Valley.....	998
Monterey.....	King City.....	Central coast.....	997	Tuolumne (<i>see</i> Fresno).....		West Sierra.....	
Napa.....	Napa.....	Bay district.....	988	Ventura (<i>see</i> Santa Barbara).....		South coast.....	
Nevada (<i>see</i> Summit).....		Sierra.....		Yolo.....	Davisville.....	Great Valley.....	986
Orange (<i>see</i> Los Angeles).....		South coast.....		Yuba (<i>see</i> Sacramento).....		do.....	
Placer.....	Auburn.....	Foothill.....	985				

STATE SUMMARY.

Station.	No.	Temperature.									
		Mean an- nual.	Mean maxi- mum.	Mean mini- mum.	Abso- lute maxi- mum.	Date.	Abso- lute mini- mum.	Date.	Average num- ber days with—		
									Maximum above 90°.	Mini- mum below 32°.	
° F.	° F.	° F.	° F.	° F.	° F.	° F.					
Sisson.....	1	50			104	August, 1902.....	— 3	February, 1899.....			
Cedarville.....	2	48	60	35	101	August, 1903.....	—13	January, 1901.....			
Eureka.....	3	52	67	39	85	June, 1903.....	20	January, 1888.....	0	6	
Redding.....	4	63	73	51	117	August, 1896.....	18	do.....			
Susanville.....	5	50	61	36	102	July, 1901.....	—11	February, 1903.....			
Red Bluff.....	6	63	74	51	114	August, 1891.....	18	January, 1888.....	87	11	
Chico.....	7	64			117	July, 1891.....	18	do.....			
La Porte.....	8	45			91	—, 1902.....	4	February, 1899.....			
Ukiah.....	9	58	72	42	112	July, 1902.....	12	January, 1898.....			
Summit.....	10	42			98	August, 1889.....	—12	January, 1888.....			
Auburn.....	11	61			110	July, 1898.....	—12	February, 1888.....			
Davisville.....	12	63			113	July, 1902.....	19	—, 1888.....			
Sacramento.....	13	60	71	49	108	August, 1894.....	19	January, 1888.....	41	8	
Napa.....	14	57	71	45	110	August, 1900.....	18	February, 1884.....			
San Francisco.....	15	56	62	50	100	June, 1901.....	29	January, 1888.....	1	0	
Livermore.....	16	60			112	August, 1879.....	20	do.....			
San Jose.....	17	58			104	—, 1891.....	18	January, 1894.....			
Merced.....	18	63			120	August, 1888.....	16	December, 1903.....			
Santa Cruz.....	19	58	69	42	108	August, 1900.....	22	February, 1903.....			
Hollister.....	20	59	71	42	105	—, 1902.....	19	—, 1903.....			
Fresno.....	21	63	76	50	114	July, 1891.....	20	January, 1888.....	97	14	
Independence.....	22	59	71	46	105	July, 1898.....	10	January, 1902.....	52	60	
King City.....	23	58			114	August, 1894.....	15	January, 1888.....			
Visalia.....	24	61	78	45	113	July, 1902.....	17	January, 1898.....			
San Luis Obispo.....	25	59	71	47	106	August, 1900.....	22	January, 1901.....	10	8	
Bakersfield.....	26	66			114	July, 1891.....	19	December, 1901.....			
Santa Barbara.....	27	60	69	50	100	May, 1896.....	28	January, 1890.....			
Los Angeles.....	28	62	74	51	109	July, 1891.....	28	February, 1883.....	15	1	
Redlands.....	29	64			113	July, 1897.....	25	February, 1903.....			
Needles.....	30	73	85	60	116	July, 1900.....	23	do.....			
Salton.....	31	77			128	June, 1896.....	18	December, 1891.....			
San Diego.....	32	61	68	54	101	September, 1883.....	32	—, 1879.....	1	0	

Station.	No.	Frost.				Precipitation.				
		Average date of—		Date of—		Annual.	Spring.	Summer.	Autumn.	Winter.
		First killing in autumn.	Last in spring.	Earliest killing in autumn.	Latest in spring.					
Sisson.....	1	Sept. 26	May 26	Sept. 13	July 6	Inches. 37.8	Inches. 9.5	Inches. 1.1	Inches. 9.2	Inches. 18.0
Cedarville.....	2	Sept. 27	May 11	Sept. 14	June 2	13.7	3.7	1.3	3.9	4.8
Eureka.....	3	Nov. 15	Apr. 9	Nov. 7	May 1	45.8	13.3	1.4	9.7	21.4
Redding.....	4	Dec. 3	Mar. 23	Nov. 20	do.....	36.2	3.3	0.3	2.3	6.1
Susanville.....	5	Oct. 3	May 10	Sept. 8	May 22	22.9	5.9	0.8	5.1	11.1
Red Bluff.....	6	Nov. 25	Mar. 15	Nov. 7	Apr. 19	25.7	6.6	0.5	5.1	13.5
Chico.....	7	Dec. 14	Mar. 24	Dec. 12	Apr. 10	22.4	5.5	0.4	4.5	12.0
La Porte.....	8	Sept. 15	May 31	Sept. 6	July 6	77.9	22.0	2.1	20.1	33.7
Ukiah.....	9	Nov. 26	Mar. 27	Oct. 16	May 2	35.0	8.9	0.3	6.4	19.4
Summit.....	10					46.9	15.3	1.3	7.2	23.1
Auburn.....	11					33.4	9.9	0.4	6.3	16.8
Davisville.....	12	Dec. 7	Feb. 26	Nov. 26	Apr. 4	16.6	4.3	0.2	2.9	9.2
Sacramento.....	13	Nov. 15	Feb. 16	Oct. 28	Apr. 26	19.9	5.8	0.2	3.6	10.3
Napa.....	14	Dec. 4	Feb. 27	Nov. 7	Mar. 30	23.7	6.6	0.2	4.0	12.9
San Francisco.....	15		Jan. 25	Dec. 13	Apr. 20	22.5	5.7	0.2	4.4	12.2
Livermore.....	16	Dec. 2	Feb. 23	Nov. 9	Apr. 12	15.3	4.0	0.2	2.9	8.2
San Jose.....	17	Dec. 6	Feb. 8	Nov. 28	Feb. 18	14.8	4.6	0.1	2.6	7.5
Merced.....	18	Dec. 11	Mar. 5	do.....	Mar. 28	10.3	3.1	0.2	1.9	5.1
Santa Cruz.....	19	Dec. 7	Mar. 12	Nov. 26	Mar. 30	27.0	7.3	0.2	5.0	14.3
Hollister.....	20	Nov. 23	Mar. 16	Nov. 8	Apr. 27	12.3	3.6	0.1	2.4	6.2
Fresno.....	21	Dec. 15	Mar. 4	Nov. 18	Apr. 14	9.2	2.6	0.1	2.0	4.5
Independence.....	22	Oct. 25	Mar. 17	Sept. 21	May 28	3.7	0.6	0.2	0.9	2.0
King City.....	23					10.8	2.6	T.	2.5	5.7
Visalia.....	24	Nov. 21	Apr. 11	Nov. 16	Apr. 11	9.8	3.1	0.2	1.9	4.6
San Louis Obispo.....	25	Dec. 17	Mar. 17	Nov. 15	Apr. 8	19.2	5.1	0.1	3.7	10.3
Bakersfield.....	26					4.8	1.3	0.1	1.0	2.4
Santa Barbara.....	27					16.6	3.9	0.1	2.6	10.0
Los Angeles.....	28		Apr. 8	Dec. 12	Apr. 8	15.6	4.3	0.1	2.3	8.9
Redlands.....	29	Dec. 12	Feb. 19	Nov. 24	Apr. 9	14.8	4.0	0.6	2.0	8.2
Needles.....	30					2.7	0.4	0.6	0.4	1.3
Salton.....	31					2.5	0.3	0.3	0.3	1.6
San Diego.....	32					9.4	2.4	0.3	1.3	5.4

CALIFORNIA.

Siskiyou: SISKIYOU COUNTY. Station: Sisson.

AGENT OF THE SOUTHERN PACIFIC COMPANY, Observer.

[Established by the Southern Pacific Company in March, 1888. Latitude, 41° 20' N. Longitude, 122° 20' W. Elevation, 3,555 feet.]

This station is located in the Siskiyou Mountains, between Eddy Mount and Mount Shasta. Mount Shasta is one of the highest mountains in the United States; elevation, 14,380 feet.

The instruments originally installed were those furnished by the railroad, but in 1902 standard thermometers and a shelter were installed by the Weather Bureau. The rain gage is still of the old, small pattern. No inspection of the station has been made, and the conditions of exposure are not known.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; also from the daily extremes.

Tabulated data are for the period of observation January 1, 1889, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxi- ma.	Abso- lute maxi- mum.	Mean of the mini- ma.	Abso- lute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Aver- age depth	Greatest depth in month.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	34		59		2	38	31	6.4	7	3.7	4.4	22	107
January.....	34		55		5	38	24	6.6	8	2.6	1.8	35	128
February.....	37		63		— 3	41	31	5.0	11	4.9	21.7	19	48
Winter mean.....	35							18.0	26	11.2	27.9	76	
March.....	40		76		11	46	32	4.3	8	0.4	4.1	14	41
April.....	48		85		17	57	40	2.8	4	0.5	5.1	6	21
May.....	55		101		27	61	48	2.4	5	0.0	2.9	1	5
Spring mean.....	48							9.5	17	0.9	12.1	21	
June.....	63		99		35	74	54	0.6	1	0.2	0	0	0
July.....	70		101		33	75	63	0.1	1	0.0	0.4	0	0
August.....	68		104		40	77	61	0.4	1	0.0	4.2	0	0
Summer mean.....	67							1.1	3	0.2	4.6	0	0
September.....	58		95		32	64	52	0.8	2	0.0	0.1	0	
October.....	50		85		26	55	46	3.3	6	2.3	5.3	0	3
November.....	41		72		8	47	31	5.1	12	2.6	11.1	5	47
Fall mean.....	50							9.2	20	4.9	16.5	5	
Annual mean.....	50		104		—3			37.8	66	17.2	61.1	102	128

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1897	None.....	Aug. 23.	1901	None.....	July 29; Aug. 4.
1898	.....do.....	July 30; Aug. 1, 2.	1902	.....do.....	Aug. 4, 6, 7.
1899	Feb. 4.....	July 19.	1903	.....do.....	May 30; July 17.
1900	None.....	July 19, 30.			

CALIFORNIA.

Extreme Northeast: MODOC COUNTY. Station: CEDARVILLE.

T. H. JOHNSTONE, Observer.

[Established by U. S. Weather Bureau in 1893. Latitude, 41° 32' N. Longitude, 120° 9' W. Elevation, 4,674 feet.]

Cedarville is located in a valley surrounded by high mountains. The instruments used are standard Weather Bureau thermometers, exposed in a regulation shelter placed 30 feet from the nearest building. The rain gage stands in an open space, and the nearest buildings are 30 feet west, 40 feet north, 100 feet east, and 8 feet south.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Average depth.	Greatest depth in month.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	31	40	60	22	2	36	26	1.7	8	1.8	1.9	5.8	13.0
January.....	31	40	59	22	-13	37	23	1.6	10	1.5	3.6	12.7	24.5
February.....	34	42	66	24	-12	39	23	1.5	12	1.1	1.1	12.3	27.5
Winter mean.....	32	41	.....	23	.....	.....	.....	4.8	30	4.4	6.6	30.8	.....
March.....	37	48	73	26	6	46	31	1.4	11	0.5	2.0	14.9	30.5
April.....	42	58	87	32	11	49	30	1.0	8	0.7	1.7	5.4	16.0
May.....	52	66	94	39	23	59	46	1.3	8	1.5	3.5	1.3	4.0
Spring mean.....	44	57	.....	32	.....	.....	.....	3.7	27	2.7	7.2	21.6	.....
June.....	61	76	94	46	30	64	56	0.6	4	0.0	0.4	0.3	2.0
July.....	68	84	99	51	32	72	65	0.3	1	0.1	0.5	0.0	T.
August.....	68	83	101	50	34	72	62	0.3	2	0.5	0.6	0.0	0.0
Summer mean.....	66	81	.....	49	.....	.....	.....	1.2	7	0.6	1.5	0.3	.....
September.....	58	75	95	42	25	63	54	0.5	3	1.2	0.6	0.0	T.
October.....	50	63	83	34	20	54	44	1.3	8	0.1	1.1	1.7	8.0
November.....	39	50	75	29	11	45	33	2.2	12	0.3	5.8	6.9	25.0
Fall mean.....	49	63	.....	35	.....	.....	.....	4.0	23	1.6	7.5	8.6	.....
Annual mean.....	48	60	101	35	-13	.....	.....	13.7	87	9.3	22.8	61.3	30.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 100° or above.	Year.	Minimum below 0°.	Maximum 100° or above.
1898	Jan. 11, 24.....	Aug. 10.	1901	Jan. 10; Feb. 10-12....	None.
1899	Feb. 4-6.....	None.	1902	Jan. 25-29.....	Do.
1900	None.....	Do.	1903	Feb. 3-6, 12-15.....	Aug. 7.

CALIFORNIA.

Northern Coast: HUMBOLDT COUNTY. Station: EUREKA.

AARON H. BELL, Observer.

[Established by Signal Service, December 1, 1886. Latitude, 40° 48' N. Longitude, 124° 11' W. Elevation, 28 feet.]

This station is situated in the city of Eureka, on the south shore of Humboldt Bay, about 7 miles from the entrance.

Humboldt Bay has a varying width of from half a mile to 4 miles and a length of 14 miles, and possesses a tidal area of about 28 square miles. It is nearly parallel with the ocean, and between the bay and the ocean intervenes a sand peninsula with a width of from one-fourth a mile to 1½ miles.

The thermometers and thermograph are exposed in a standard pattern instrument shelter on the flat roof of the building, the floor of the shelter being 11.4 feet above the roof.

The rain gage and sunshine recorder are also on the roof.

Height of top of rain gage above roof, 2.3 feet; above ground, 53.2 feet; north of instrument shelter, 17½ feet.

Height of sunshine recorder above roof, 4.2 feet; above ground, 55.2 feet. Height of anemometer cups above roof, 28 feet above ground, 80 feet. Height of wind vane above roof, 26 feet; above ground, 78 feet.

Tabulated data are from following periods of observation: Depth of snow, eleven years; sunshine data, eight years; humidity, fifteen years. Remainder of data is from the full period of observation, seventeen years, January 1, 1857, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.							Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max- ima.	Absolute maxi- mum.	Mean of the min- ima.	Absolute mini- mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage possible.		
												Average depth.	Greatest depth in 24 hours.								
December.....	48	64	70	33	30	52	45	7.3	16	3.2	9.4	0.0	0.0	88	3.00	81	3.42	130	45	SE.	
January.....	47	64	77	31	20	50	42	7.6	17	3.2	8.1	T.	T.	90	2.96	82	3.34	111	37	SE.	
February.....	47	63	72	31	24	52	41	6.5	16	8.0	4.6	T.	1.5	90	2.96	79	3.22	123	41	N.	
Winter mean.....	47	64	.....	32	.....	.....	.....	21.4	49	14.4	22.1	T.	.....	89	2.97	81	3.33	121	41	SE.
March.....	48	65	75	34	29	52	45	6.2	16	1.8	6.9	0.3	1.8	90	3.07	78	3.29	170	46	NW.	
April.....	50	65	73	36	31	53	48	4.3	13	2.8	11.1	0.0	0.0	90	3.18	78	3.41	211	53	NW.	
May.....	52	67	78	41	35	55	50	2.8	41	2.6	6.2	0.0	0.0	91	3.58	80	3.75	223	50	NW.	
Spring mean.....	50	66	.....	37	.....	.....	.....	13.3	40	7.2	24.2	0.3	.....	90	3.28	79	3.48	201	50	NW.
June.....	55	68	85	43	40	59	52	1.2	6	1.2	0.5	0.0	0.0	92	3.88	79	3.96	244	54	NW.	
July.....	56	66	73	47	43	58	52	0.1	1	T.	0.0	0.0	0.0	94	4.25	81	4.35	220	48	NW.	
August.....	56	68	79	48	45	60	54	0.1	2	0.1	0.7	0.0	0.0	95	4.30	84	4.51	165	38	NW.	
Summer mean.....	56	67	.....	46	.....	.....	.....	1.4	9	1.3	1.2	0.0	.....	94	4.14	81	4.27	210	47	NW.
September.....	56	71	82	43	36	57	53	1.4	5	1.5	1.6	0.0	0.0	94	4.11	82	4.40	180	48	NW.	
October.....	54	73	84	41	38	56	51	2.9	9	2.1	2.4	0.0	0.0	92	3.75	84	4.21	156	45	NW.	
November.....	51	69	74	35	27	56	48	5.4	13	4.4	8.0	0.0	0.0	91	3.46	83	3.89	109	37	SE.	
Fall mean.....	54	71	.....	40	.....	.....	.....	9.7	27	8.0	12.0	0.0	.....	92	3.77	83	4.17	148	43	NW.
Annual mean.....	52	67	85	39	20	.....	.....	45.8	125	30.9	59.5	0.3	1.8	91	3.54	81	3.81	170	45	NW.

a Also SE.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 80° or above.	Year.	Minimum below 32°.	Maximum 80° or above.
1894	Jan. 5, 6; Feb. 2, 10, 13, 16, 21, 22; Mar. 3; Dec. 24, 26.	None.	1898	Jan. 10, 24, 26; Mar. 16, 17, 22, 27; Dec. 11, 21, 22.	None. Do.
1895	Jan. 15, 24, 25, 28, 29; Mar. 15; Apr. 5; Nov. 23; Dec. 22, 25, 29.	Do.	1899	Feb. 2-6.....	Do.
1896	Mar. 1-4, 31; Nov. 27-29.	Do.	1900	None.....	Do.
1897	Feb. 20-23; Mar. 21, 30; Dec. 19.	Sept. 17; Oct. 5.	1901	Feb. 8-10; Dec. 12, 13..	Do.
			1902	Jan. 26-29.....	Do.
			1903	Feb. 4, 5, 12-15.....	June 6, 7.

CALIFORNIA.

Great Valley: SHASTA COUNTY. Station: REDDING.

L. F. BASSET, Observer.

[Established by Southern Pacific Company, September, 1874. Latitude, 40° 36' N. Longitude, 122° 27' W. Elevation, 552 feet.]

Redding is situated in the valley of the upper Sacramento, with hills on both sides rising to considerable elevations. The general trend of the valley is north and south. Mount Shasta, one of the highest mountains in the United States, blocks the northern end of the valley. The general movement of the air is down the mountain side—that is, from the north.

The instruments originally used were those furnished by the Southern Pacific Railroad Company, but for many years standard Weather Bureau instruments have been in use. The thermometer shelter is under a porch on the north side of the observer's house. The rain gage is located in the yard near the house; the height of the gage is 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1875, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	Average depth.	Greatest depth in month.
December.....	47	55	77	40	28	54	42	6.7	9	1.8	17.7	0.8	6.0
January.....	45	54	78	36	18	53	39	7.3	9	0.5	6.3	1.3	8.0
February.....	49	57	83	40	23	58	43	4.2	13	3.8	0.1	1.7	9.0
Winter mean.....	47	55		39				18.2	31	6.1	24.1	3.8	
March.....	54	62	86	42	25	66	46	4.8	9	0.0	10.8	0.0	0.0
April.....	60	70	99	47	31	70	51	3.0	6	0.8	2.3	0.0	0.0
May.....	67	78	108	54	35	74	60	2.2	6	3.6	3.9	0.0	0.0
Spring mean.....	60	70		48				10.0	21	4.4	17.0	0.0	
June.....	76	88	109	62	43	82	68	0.8	2	0.2	1.0	0.0	0.0
July.....	82	94	116	66	48	87	70	0.1	0	0.0	0.0	0.0	0.0
August.....	81	92	117	65	52	87	74	0.1	1	0.0	0.0	0.0	0.0
Summer mean.....	80	91		64				1.0	3	0.2	1.0	0.0	
September.....	74	86	108	60	43	82	66	0.7	2	0.1	0.0	0.0	0.0
October.....	64	74	100	52	35	72	59	2.5	6	1.6	15.1	0.0	0.0
November.....	54	61	92	44	28	60	48	3.8	10	2.2	5.1	0.0	0.0
Fall mean.....	64	74		52				7.0	18	3.9	20.2	0.0	
Annual mean.....	63	73	117	51	18			36.2	73	14.6	62.3	3.8	9.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	Dec. 22.....	None.	1900	None.....	None.
1898	Jan. 10, 11, 29; Dec. 11, 12, 29, 30.	Do.	1901	Jan. 1.....	Do.
			1902	None.....	Do.
1899	Jan. 3, 5; Feb. 3-5....	Do.	1903	.....do.....	Do.

CALIFORNIA.

Northeast: LASSEN COUNTY. Station: SUSANVILLE.

JAMES BRANHAM, Observer.

[Established by the Signal Service in 1888. Latitude, 40° 24' N. Longitude, 120° 30' W. Elevation, 4,195 feet.]

Susanville lies on the northeastern slope of the Sierras. The country is mountainous, sloping eastward toward north-western Nevada.

The instruments used are a Draper recording thermometer, exposed on the north side of a building, and standard maximum and minimum thermometers, the property of the Weather Bureau, have been used since July, 1902. The shelter is placed on the north side of a building about 5 feet above the ground. The rain gage is of the Weather Bureau standard and is exposed in the open about 20 feet from the nearest building.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	32	39	60	24	6	39	28	4.0	6	0.6	8.6
January.....	31	40	58	23	- 8	38	24	4.2	9	0.4	1.1
February.....	34	42	66	24	-11	41	17	2.9	10	2.4	0.6
Winter mean.....	32	40		24				11.1	25	3.4	9.2
March.....	40	49	68	28	10	46	35	2.7	9	0.4	4.8
April.....	47	59	82	35	17	54	42	1.4	5	0.2	1.1
May.....	56	68	89	42	26	65	49	1.8	5	0.5	6.3
Spring mean.....	48	59		35				5.9	19	1.1	12.2
June.....	64	78	94	47	33	74	60	0.6	2	1.0	1.6
July.....	72	85	102	51	34	77	63	0.1	1	0.0	0.1
August.....	71	83	98	51	32	76	61	0.1	2	0.1	0.0
Summer mean.....	69	82		50				0.8	5	1.1	1.7
September.....	62	74	90	44	28	74	53	0.7	2	0.1	0.0
October.....	51	62	78	37	24	58	45	1.6	6	0.8	4.2
November.....	41	49	66	32	16	48	37	2.8	9	1.7	2.7
Fall mean.....	52	62		38				5.1	17	2.6	6.9
Annual mean.....	50	61	102	36	-11			22.9	66	8.2	30.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year	Minimum below 0°.	Maximum 100° or above.	Year	Minimum below 0°.	Maximum 100° or above.
1897	None.....	None.	1901	Jan. 10; Feb. 10, 11...	July 30.
1898	Jan. 11.....	Do.	1902	Jan. 26, 28, 29.....	None.
1899	Feb. 5.....	Do.	1903	Feb. 2-6, 13-19.....	Do.
1900	None.....	Do.			

CALIFORNIA.

Great Valley: TEHAMA COUNTY. Station: RED BLUFF.

MAURICE CONNELL, Observer.

[Established July, 1877. Latitude, 40° 10' N. Longitude, 122° 15' W. Elevation, 304 feet.]

This station is situated near the upper end of the Sacramento Valley, on the west bank of the Sacramento River, about 200 miles from its mouth. It lies midway between the Coast Range and the Sierra Nevada Range of mountains. The Coast Range here has an elevation of 4,000 feet above the level of the valley. The Sierras are elevated 6,000 feet. The land opens out in a wide plain west and south from the station and rises abruptly from the river eastward. Toward the north the valley narrows and ends at the town of Redding, 42 miles from Red Bluff.

The office is located in the Bank of Tehama County Building on the northwest corner of Main and Walnut streets. The thermometers are exposed in a standard shelter on the roof and the rain gage on the ridge.

The humidity tabulated is from fifteen years record. Remainder of tabulated data is from the full period of observation, twenty-six years, January 1, 1878, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
												Average depth.	Greatest depth in 24 hours.					
December.....	° F. 47	° F. 54	° F. 79	° F. 39	° F. 25	° F. 50	° F. 42	In. 5.3	12	In. 1.7	In. 0.7	In. 0.0	In. 0.0	P. ct. 87	Grs. 2.67	P. ct. 70	Grs. 3.06	N.
January.....	45	53	77	37	18	50	39	4.7	11	0.6	20.7	T.	5.0	87	2.49	68	2.87	N.
February.....	49	58	■	40	22	54	43	3.5	9	5.4	16.7	T.	8.0	82	2.60	56	2.72	N.
Winter mean.....	47	55	.....	39	.....	.....	.....	13.5	32	7.7	38.1	T.	.....	85	2.59	65	2.88	N.
March.....	55	62	86	44	28	61	50	3.2	11	0.0	4.2	0.0	0.8	82	2.90	53	3.17	N.
April.....	59	70	96	48	34	67	54	2.1	8	0.6	2.3	0.0	0.0	76	3.50	43	3.22	SE.
May.....	67	79	110	55	38	73	61	1.3	6	2.3	0.9	0.0	0.0	79	3.56	38	3.79	SE.
Spring mean.....	60	70	.....	49	.....	.....	.....	6.6	25	2.9	7.4	0.0	.....	76	3.32	45	3.39	SE.
June.....	75	87	110	60	44	81	70	0.5	4	0.1	0.0	0.0	0.0	59	3.44	26	3.67	SE.
July.....	82	97	112	66	53	86	78	0.0	0	0.0	0.0	0.0	0.0	■	4.41	18	3.28	N.
August.....	81	95	114	65	52	84	74	0.0	0	T.	0.0	0.0	0.0	49	3.55	20	3.33	SE.
Summer mean.....	79	93	.....	64	.....	.....	.....	0.5	5	0.1	0.0	0.0	.....	52	3.80	21	3.43	N.
September.....	73	86	107	60	46	81	60	0.6	3	0.4	0.4	0.0	0.0	57	3.47	28	3.76	N.
October.....	64	77	97	52	32	71	58	1.5	4	0.5	0.5	0.0	0.0	67	3.26	38	3.34	N.
November.....	54	64	88	44	26	59	50	3.0	6	1.2	1.2	0.0	0.0	75	3.75	55	3.27	N.
Fall mean.....	64	76	.....	52	.....	.....	.....	5.1	13	2.1	2.1	0.0	.....	66	3.49	40	3.46	N.
Annual mean.....	63	74	114	51	18	.....	.....	25.7	74	12.8	47.6	T.	8.0	71	3.30	43	3.29	N.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	None.....	June 30; July 4-9, 16-18, 22, 23, 31; Aug. 1, 2, 4, 22-29; Sept. 21, 22.	1899	None.....	June 9, 10, 13, 15-17, 30; July 1-3, 16-19, 23, 24; Aug. 30; Sept. 9-11, 23, 24.
1895	.....do.....	June 21-24, 26; July 7-10, 13-16, 18, 22-25; Aug. 3-7, 13, 14, 17, 23, 24.	1900	.....do.....	June 6, 26; July 7-12, 15-19, 27-30; Aug. 1, 2, 20, 21; Sept. 1.
1896	.....do.....	June 17, 23, 26; July 2-20, 24; Aug. 10; Sept. 5.	1901	.....do.....	June 2, 7, 28-30; July 5, 6, 19, 20, 22-29; Aug. 1-5, 8-12, 16, 17; Sept. 15, 16.
1897	.....do.....	June 6, 7, 29, 30; July 9-16, 19, 28, 31; Aug. 1, 2, 13-15, 17, 19-24.	1902	.....do.....	June 18-20; July 9, 11, 12, 18-24; Aug. 1-8, 31; Sept. 1-9.
1898	.....do.....	June 24, 25, 27, 28; July 2, 3, 15, 18, 19, 25-31; Aug. 10-15, 25; Sept. 6, 15.	1903	.....do.....	May 30; June 6-9, 24, 27; July 4, 30, 31; Aug. 1, 6-9, 17, 18; Sept. 1-3.

CALIFORNIA.

Great Valley: BUTTE COUNTY. Station: CHICO.

G. H. STEVENSON, Observer.

[Established by Southern Pacific Railroad Company in 1870. Latitude, 39° 43' N. Longitude, 121° 48' W. Elevation, 193 feet.]

Chico is situated about 5 miles east of the Sacramento River in the north-central portion of the valley. The lower foothills of the Sierra Nevada Mountains lie close to the east. While the elevation of Chico itself is but 193 feet, 10 miles east the contours approximate 1,000 feet, and 20 miles east elevations of several thousand feet are reached. The Sierra Nevada Mountains are not quite as abrupt and lofty here as elsewhere in the range.

The instruments were originally of the type used by the Southern Pacific Railroad Company, but standard instruments were installed in 1902. The instrument shelter and rain gage are exposed in an open field. The height of the thermometers is 6 feet, and the top of the gage 3 feet above the ground.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; also from the daily extremes of temperature.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1870, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	48		78		20	53	39	4.2	6	1.8	9.1
January.....	47		78		18	51	42	4.5	8	0.8	5.0
February.....	50		84		20	57	44	3.3	7	5.3	3.3
Winter mean.....	48							12.0	21	7.9	15.4
March.....	56		88		28	64	50	2.7	6	0.2	4.6
April.....	62		97		30	71	53	1.8	4	0.5	3.8
May.....	68		107		40	75	62	1.0	4	1.6	3.2
Spring mean.....	62							5.5	14	2.3	11.6
June.....	77		114		47	88	63	0.4	1	0.0	0.0
July.....	84		117		48	91	74	T.	0	0.0	0.0
August.....	82		116		50	88	73	T.	0	0.0	0.0
Summer mean.....	81							0.4	1	0.0	0.0
September.....	75		109		40	83	65	0.5	1	0.4	0.0
October.....	65		103		36	76	57	1.4	4	0.4	0.9
November.....	54		90		22	59	46	2.6	7	1.3	6.3
Fall mean.....	65							4.5	12	2.1	7.2
Annual mean.....	64		117		18			22.4	48	12.3	34.2

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1898	Jan. 24.....	July 27-30; Aug. 11-13.	1902	Dec. 30.....	July 23, 24.
1899	Feb. 5, 6.....	None.	1903	Jan. 11, 16, 17, 30;	None.
1900	None.....	June 6.		Feb. 3, 4, 13-17.	
1901	.....do.....	None.			

CALIFORNIA.

Sierra: PLUMAS COUNTY. Station: LA PORTE.

C. W. HENDEL, Observer.

[Established by U. S. Weather Bureau in 1893. Latitude, 39° 40' W. Longitude, 120° 58' W. Elevation, 5,000 feet.]

La Porte is situated in the mountains on the western slope of the Sierra. The thermometers in use are Weather Bureau instruments and were originally exposed in an open-faced box 10 by 12 by 6 inches, placed about 5 feet above the ground; but in 1903 a standard shelter was supplied. The rain gage is a standard Weather Bureau gage and is 30 feet from the nearest building.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; also from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, APRIL 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.					
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.	
												Average depth.	Greatest depth in month.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.
December.....	34		60		8	39	31	10.5	0	3.4	12.9	23	53
January.....	33		60		8	38	28	14.8	12	2.5	32.4	54	114
February.....	35		62		4	37	28	8.4	13	13.0	2.8	60	146
Winter mean.....	34							33.7	34	18.9	48.1	137	
March.....	34		64		11	41	29	12.0	13	1.6	16.2	72	119
April.....	41		75		16	46	33	5.4	9	1.5	16.6	27	67
May.....	48		82		26	55	44	4.6	8	4.6	9.3	4	13
Spring mean.....	41							22.0	30	7.7	42.1	103	
June.....	57		86		32	60	51	1.7	3	2.7	0.1	2	7
July.....	62		91		32	66	58	0.2	0	0.0	0.3	0	0
August.....	60		91		38	63	55	0.2	1	T.	0.2	0	0
Summer mean.....	60							2.1	4	2.7	0.6	0	
September.....	53		87		31	58	50	2.1	3	0.9	2.3	2	11
October.....	47		75		24	52	44	7.4	8	3.3	3.1	9	27
November.....	40		68		16	45	36	10.6	13	6.7	23.9	16	37
Fall mean.....	47							20.1	24	10.9	29.3	27	
Annual mean.....	45		91		4			77.9	92	40.2	120.1	269	146

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 10°.	Maximum 90° or above.	Year.	Minimum below 10°.	Maximum 90° or above.
1897	Feb. 21-23.....	None.	1901	Jan. 1, 9, 10.....	July 30; Aug. 3.
1898	Jan. 11.....	July 29-31; Aug. 1, 11.	1902	Jan. 25, 29, 31.....	July 23, 24; Aug. 5.
1899	Feb. 5, 6.....	None.	1903	Feb. 5.....	None.
1900	Dec. 31.....	Do.			

CALIFORNIA.

Coast Valley: MENDOCINO COUNTY. Station: UKIAH.

GEORGE McCOWEN, Observer.

[Established by the Weather Bureau in 1892. Latitude, 38° 8' N. Longitude, 123° 13' W. Elevation, 620 feet.]

Ukiah is situated in the northern portion of the Russian River valley, one of several valleys opening from the San Francisco Bay district northwest in the Coast range of mountains.

For many years the observer used his own thermometers, but in 1902 standard Weather Bureau instruments and shelter were installed. The shelter stands among grapevines in the most open section of a large lot. The height of the thermometers is about 5 feet above the ground. The rain gage is placed about 10 feet from the thermometers, with its rim 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with .01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	45	57	86	33	20	48	42	6.8	9	2.4	15.5
January.....	45	56	77	35	12	49	40	7.5	12	1.2	15.7
February.....	48	58	82	36	18	52	44	5.1	12	7.1	9.4
Winter mean.....	46	57		35				19.4	33	10.7	40.6
March.....	50	62	85	37	24	60	45	4.8	11	0.7	3.0
April.....	55	70	88	39	27	63	48	2.8	5	0.8	2.4
May.....	60	74	102	44	30	69	55	1.3	4	1.0	1.2
Spring mean.....	55	69		40				8.9	30	2.5	6.6
June.....	68	85	107	48	36	79	61	0.3	1	0.6	1.3
July.....	73	92	112	49	39	83	68	T.	1	0.0	T.
August.....	72	90	111	49	40	76	69	T.	0	0.0	0.0
Summer mean.....	71	89		49				0.3	1	0.6	1.3
September.....	66	87	108	46	32	76	60	0.8	2	0.8	0.8
October.....	58	74	98	43	30	63	53	1.7	6	1.2	2.4
November.....	51	62	79	40	25	58	47	3.0	12	2.0	1.4
Fall mean.....	58	74		43				6.4	20	4.0	4.6
Annual mean.....	58	72	112	42	12			35.0	74	17.8	53.1

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	Feb. 23; Mar. 21; Dec. 17, 19-23, 31.	None.	1901	Jan. 1, 10; Feb. 1-3, 7, 9-11; Dec. 12, 13-21, 27-29.	None.
1898	Jan. 1, 7-13, 24, 26-31; Feb. 22; Mar. 22; Nov. 12, 25, 26; Dec. 8, 10-12, 22-24, 29-31.	Do.	1902	Jan. 5, 10, 11, 27-29; Mar. 24; Dec. 14, 17-19, 28-30.	July 23, 24.
1899	Feb. 4, 5; Dec. 18, 19.	Do.	1903	Jan. 16; Feb. 2-6, 13-17; Dec. 5-7.	Aug. 8.
1900	Dec. 28-31.	Do.			

CALIFORNIA.

Sierra: PLACER COUNTY. Station: SUMMIT

AGENT OF THE SOUTHERN PACIFIC COMPANY, Observer.

[Established by Southern Pacific Company in February, 1870. Latitude, 39° 19' N. Longitude, 120° 27' W. Elevation, 7,017 feet.]

This station is located in the snowshed system of the railroad extending from Blue Canyon to Truckee. In order to cross the Sierra Nevada the railroad passes to the north side of Summit Valley and Donner Peak, elevation 8,315 feet. Donner Lake, elevation 6,095 feet, lies about 1 mile to the northeast. The station is therefore essentially alpine in character. As much as 60 feet of snow have been recorded in a year at this point.

The instruments and shelter formerly used were those of the ordinary railroad pattern, but in 1903 standard Weather Bureau instruments and shelter were installed. The shelter is located on the south side of the station building. The thermometers are about 10 feet above the ground, but only a few feet above the snow, which covers the ground a large part of the year. The rain gage stands in the open, about 15 feet from the depot. A snow gage, reading to 21 feet, is within a few feet of the rain gage.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; also from the daily extremes.

Tabulated data are for the period of observation January 1, 1873, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1873, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow. Average depth. Greatest depth in month.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.
December.....	30		63		- 6	37	25	7.9	6	0.8	7.9	68
January.....	28		68		-12	34	20	8.2	9	5.0	12.7	79
February.....	29		50		-10	33	22	7.0	10	0.0	5.2	74
Winter mean.....	29							23.1	25	5.8	25.8	221
March.....	31		60		- 4	37	23	8.0	11	0.0	15.8	84
April.....	36		67		5	42	28	5.2	0	2.0	1.8	55
May.....	43		74		18	50	36	2.1	5	3.6	3.6	20
Spring mean.....	37							15.3	22	5.6	21.2	159
June.....	53		92		28	61	44	0.6	1	T.	0.7	2
July.....	61		95		33	68	54	0.2	0	0.0	0.0	0
August.....	60		98		32	70	52	0.5	1	0.0	1.0	0
Summer mean.....	58							1.3	2	T.	1.7	2
September.....	54		83		24	62	46	0.2	1	0.0	0.0	2
October.....	44		75		15	53	36	2.5	5	3.8	16.0	14
November.....	36		65		- 8	42	31	4.5	9	3.6	9.2	35
Fall mean.....	45							7.2	15	7.4	25.2	51
Annual mean.....	42		98		-12			46.9	64	18.8	73.9	433

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 0°.	Maximum 80° or above.	Year.	Minimum below 0°.	Maximum 80° or above.
1898	None.....	July 26-31; Sept. 10.	1901	Jan. 10.....	July 30.
1899	Feb. 5.....	July 18, 19, 23.	1902	Jan. 26, 28.....	July 23-25; Aug. 5-7; Sept. 6-9.
1900	None.....	None.	1903	Feb. 12, 13.....	Aug. 8.

CALIFORNIA.

Foothill: PLACER COUNTY. Station: AUBURN.

AGENT OF THE SOUTHERN PACIFIC RAILWAY COMPANY, Observer.

[Established by Southern Pacific Company, 1871. Latitude, 38° 54' N. Longitude, 121° 50' W. Elevation, 1,360 feet.]

Auburn is situated a short distance southwest of the junction of the middle and north forks of American River. The elevation is about 1,400 feet, with the land sloping eastward to American River, where the elevation of the channel is about 500 feet. The Sierra Nevada Mountains, running through the eastern portion of the county, reach an elevation of 7,000 feet.

The instruments and shelter were originally provided by the Southern Pacific Railroad Company in 1871. The shelter is of the railroad type and is located about 4 feet above the ground on the north side of the railroad station. A small rain gage about 6 inches in diameter is exposed about 6 feet above the ground. A standard rain gage was installed in January, 1904, by the side of the old gage.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1871, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	47		80		18	54	43	6.1	6	1.6	16.4
January.....	46		85		12	53	38	5.9	7	6.9	5.3
February.....	48		85		20	54	40	4.8	8	1.5	7.6
Winter mean.....	47							16.8	21	10.0	29.3
March.....	52		88		23	57	45	5.1	7	2.1	10.2
April.....	56		89		32	63	51	3.2	4	0.7	8.0
May.....	63		100		36	74	58	1.6	3	1.5	0.8
Spring mean.....	57							9.9	14	4.3	19.0
June.....	71		108		45	81	64	0.4	1	0.3	1.2
July.....	77		110		54	80	72	T.	0	0.0	0.0
August.....	76		110		48	82	71	T.	0	0.0	0.0
Summer mean.....	75							0.4	1	0.3	1.2
September.....	71		103		42	77	64	0.5	1	0.0	0.6
October.....	65		98		32	70	55	1.9	4	1.0	2.2
November.....	55		95		25	61	44	3.9	8	2.5	0.0
Fall mean.....	64							6.3	13	3.5	2.8
Annual mean.....	61		110		12			33.4	49	18.1	52.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1898	Jan. 11-24.....	July 29, 30; Aug. 11, 12.	1901	None.....	None.
1899	Feb. 6.....	None.	1902	do.....	Do.
1900	None.....	Do.	1903	Feb. 15.....	Do.

CALIFORNIA.

Great Valley: YOLO COUNTY. Station: DAVISVILLE.

AGENT OF THE SOUTHERN PACIFIC RAILWAY COMPANY, Observer.

[Established by Southern Pacific Company, 1871. Latitude, 38° 33' N. Longitude, 121° 43' W. Elevation, 51 feet.]

This station is located some miles west of Sacramento. The surrounding country is very level for many miles.

The thermometer used is of the Sala type, exposed in a small, perforated box, on the the north side of the railroad station and 4 feet above the ground. The rain gage is mounted, as is customary on the Southern Pacific Railway system, on a post. The rim of the gage is 7 feet above the ground.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1872, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	49		83		19	54	45	3.3	4	1.0	9.0
January.....	48		76		19	56	42	3.5	7	2.8	0.2
February.....	52		86		22	61	44	2.4	5	1.1	0.4
Winter mean.....	50							9.2	16	4.9	9.6
March.....	56		94		32	65	48	2.2	6	0.5	6.6
April.....	61		98		35	69	51	1.4	2	0.1	1.2
May.....	68		106		41	74	62	0.7	2	0.3	1.5
Spring mean.....	62							4.3	10	0.9	9.3
June.....	75		110		46	83	68	0.2	0	0.0	0.3
July.....	78		113		52	84	71	T.	0	T.	0.0
August.....	74		112		50	86	70	T.	0	0.0	0.0
Summer mean.....	76							0.2	0	T.	0.3
September.....	72		108		45	81	62	0.2	0	0.0	0.0
October.....	65		106		36	77	59	0.9	4	0.7	8.1
November.....	56		87		26	62	51	1.8	6	0.3	3.0
Fall mean.....	64							2.9	10	1.0	11.1
Annual mean.....	63		113		19			16.6	36	6.8	30.0

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1898	Jan. 27.....	July 29; Aug. 11, 12.	1901	Jan. 1.....	None.
1899	None.....	None.	1902	None.....	July 23, 24.
1900	.....do.....	Do.	1903	.....do.....	None.

CALIFORNIA.

Central Valley: SACRAMENTO COUNTY. Station: SACRAMENTO.

J. H. SCARR, Observer.

[Established by the U. S. Signal Service June 26, 1877. Observations began July 1, 1877. Latitude, 38° 35' N. Longitude, 121° 30' W. Elevation, 29 feet.]

The country adjacent to the station is level and practically treeless except for scattered live and white oaks. The banks of the American River just north of the city are heavily timbered. To the east the land rises almost imperceptibly for 10 to 20 miles. To the west the land lies much the same, and is bounded by the low coast range some 50 miles away. To the north and south the level of the valley is practically unbroken throughout its entire length. Directly south west is the gap in the Coast Range through which the waters of the great interior valley are discharged by the Sacramento and San Joaquin rivers to the Pacific Ocean.

All data not otherwise designated is for the whole period of observations, July 1, 1877, to December 31, 1903. Mean relative humidity, 8 a. m., January to June, inclusive, twenty-five years; July, August, and December, twenty-six years; September, October, and November, twenty-seven years. The 8 a. m. observation was suspended from December 1, 1896, to August 31, 1897. Monthly precipitation for the driest year, January to June, inclusive, is from the record of Dr. T. M. Logan. All data used on this form or in the compilation of the same, except the case mentioned above, are from the records of the U. S. Weather Bureau.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.					Mean humidity.				Direction of prevailing wind.	
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.		Absolute, 8 p. m.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.	In.	In.	P. ct.	Grs.	P. ct.	Grs.	
December.....	47	54	69	40	24	50	43	3.5	9	1.4	10.4	T.	4.0	85	2.61	76	3.34	SE.
January.....	46	52	72	39	19	50	42	3.8	10	2.8	3.4	T.	3.0	88	2.62	76	3.00	SE.
February.....	50	58	76	42	21	54	45	3.0	8	1.0	4.5	T.	T.	86	2.83	67	3.14	SE.
Winter mean.....	47	55	.....	40	.....	.....	.....	10.3	27	5.2	18.3	T.	.....	86	2.69	73	3.16	SE.
March.....	54	63	80	46	29	60	49	2.8	9	0.6	8.1	0.0	T.	84	3.07	62	3.54	SE.
April.....	58	68	89	48	35	63	53	2.0	6	0.2	4.3	0.0	T.	83	3.40	57	3.97	SE.
May.....	64	75	98	52	39	67	59	1.0	4	0.6	0.1	0.0	0.0	82	3.71	54	4.59	SW.
Spring mean.....	59	69	.....	49	.....	.....	.....	5.8	19	1.4	12.5	0.0	.....	83	3.35	58	4.03	SW.
June.....	70	83	106	56	44	74	65	0.2	1	T.	1.4	0.0	0.0	78	4.04	47	4.96	SW.
July.....	74	89	106	58	47	76	69	T.	0	T.	0.0	0.0	0.0	76	4.22	42	5.39	S.
August.....	73	89	108	58	48	77	68	T.	0	T.	0.0	0.0	0.0	77	4.27	41	5.68	S.
Summer mean.....	72	87	.....	57	.....	.....	.....	0.2	1	T.	1.4	0.0	.....	77	4.18	41	5.31	S.
September.....	70	84	106	56	44	76	65	0.3	1	0.0	0.6	0.0	0.0	74	3.83	44	4.82	S.
October.....	62	74	98	50	36	66	58	1.1	4	0.7	2.0	0.0	0.0	77	3.78	52	4.44	SE.
November.....	54	64	81	43	27	58	49	2.2	6	1.1	0.0	0.0	0.0	83	3.04	62	3.71	SE.
Fall mean.....	62	74	50	3.6	11	1.8	2.6	0.0	78	3.55	53	4.32	SE.
Annual mean.....	60	71	108	49	19	19.9	58	8.4	34.8	T.	4.0	81	3.45	57	4.21	SE.

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DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 30°.	Maximum 100° or above.	Year.	Minimum below 30°.	Maximum 100° or above.
1894	Jan. 3, 5, 6; Dec. 26...	July 9, 17; Aug. 1, 25-28.	1900	Feb. 4-7.....	July 13, 19, 23; Sept. 23, 24.
1895	Jan. 26; Dec. 29.....	June 23.	1901	Dec. 31.....	July 7; Aug. 1-3.
1896	Jan. 1, 4, 5.....	July 7-10.	1901	Jan. 1, 10; Dec. 15, 17, 21.	June 28; July 31; Aug. 2, 3, 10-12.
1897	Dec. 20, 21-23.....	July 10-13, 31; Aug. 19, 21-23.	1902	Jan. 26, 27; Nov. 28...	July 22-24; Aug. 3; Sept. 5.
1898	Jan. 1, 9-14, 16-18, 24, 28; Mar. 23; Dec. 10-12, 16, 24, 30, 31.	July 2, 25-30; Aug. 9-14.	1903	Jan. 17.....	June 7, 24, 27; Sept. 2.

CALIFORNIA.

Bay District: NAPA COUNTY. Station: NAPA.

W. H. MARTIN, Observer.

[Established by Southern Pacific Company in 1877. Latitude, 38° 17' N. Longitude, 122° 15' W. Elevation, 60 feet.]

Napa is situated in the Napa Valley, one of several valleys opening to the north from the San Francisco Bay district. The surrounding hills are of moderate elevation. The general movement of the air is from the south, and in summer months from the north.

This station was originally equipped with the customary instruments furnished by the Southern Pacific Company, but for many years back the records have been kept at the State Hospital.

The instruments used are a Draper thermograph and a common mercurial thermometer. The instruments are exposed in a Stevenson screen in a corner of a garden 100 feet from any tall trees. The standard rain gage is located on the top of a building 30 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1878, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	46	78	83	37	18	51	41	4.4	6	1.0	12.2
January.....	45	55	83	38	20	53	39	5.1	8	1.2	0.9
February.....	49	61	86	40	18	55	41	3.4	9	3.8	1.0
Winter mean.....	47	58		38				12.9	23	6.0	14.1
March.....	52	63	84	41	24	57	48	3.4	9	0.1	8.9
April.....	56	70	93	43	32	62	52	2.2	5	0.3	0.5
May.....	60	74	101	47	33	66	57	1.0	3	1.6	2.2
Spring mean.....	56	69		44				6.6	17	2.0	11.6
June.....	65	82	108	50	39	71	61	0.2	1	0.4	0.0
July.....	66	83	106	51	39	73	61	T.	0	0.0	0.0
August.....	65	82	110	52	42	70	61	T.	0	0.0	0.0
Summer mean.....	65	82		51				0.2	1	0.4	0.0
September.....	64	82	106	49	39	70	58	0.4	2	0.6	0.0
October.....	59	77	102	48	32	66	50	1.1	5	0.9	5.3
November.....	52	64	89	44	19	58	47	2.5	8	0.6	3.9
Fall mean.....	58	74		47				4.0	15	2.1	9.2
Annual mean.....	57	71	110	45	18			23.7	56	10.5	34.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	Dec. 23.....	None.	1900	None.....	Aug. 1.
1898	Jan. 26-28; Mar. 23; Dec. 12-31.	Do.	1901	Jan. 1.....	None.
			1902	None.....	Do.
1899	Feb. 4.....	Do.	1903	Feb. 3.....	Do.

CALIFORNIA.

Central Coast: SAN FRANCISCO COUNTY. Station: SAN FRANCISCO.

Prof. A. G. MCADIE, District Forecaster.

[Established by Signal Service February, 1871. Latitude, 37° 48' N. Longitude, 122° 26' W. Elevation, 28 feet.]

The city lies on the northern end of the southern peninsula and is surrounded by water at all points except to the south. The northern peninsula reaches to within a mile of the southern peninsula. Between the two is the water passage known as the Golden Gate. The prevailing movement of the air is from west along the entire coast in these latitudes and the narrow waterway connecting as it does the great inland valley and the ocean intensifies the air movement.

The Weather Bureau office is located on the tenth floor of the Mills Building, the instruments being exposed on the roof at elevations varying from 150 to 170 feet above the ground. The Weather Bureau records begin on February 2, 1871, the office (Signal Office) being then located in the old Merchants' Exchange. On September 4, 1890, the office was moved to the Phelan Building, remaining there a little over two years. It has been in its present quarters since November 1, 1892.

The thermometers are 161 feet above the ground and the rain gage 154 feet. It has been found by comparative readings that the catch at this elevation is less, owing to eddy effects caused by high winds, than would be the case if the gage were nearer the ground.

The sunshine record is for nine years, 1895-1903; the humidity for fifteen years, 1889-1903. Remainder of tabulated data is from the full period of observation, thirty-two years, January 1, 1872, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	° F. 51	° F. 56	° F. 72	° F. 47	° F. 34	° F. 54	° F. 48	In. 4.3	11	1.6	7.7	0.1	3.5	P.ct. 85	Grs. 3.23	P.ct. 75	Grs. 3.39	164	56	N.
January.....	50	55	73	45	29	55	46	4.5	11	1.1	3.9	0.0	T.	86	3.04	75	3.28	161	53	N.
February.....	52	57	80	46	33	57	47	3.4	10	2.1	6.6	0.0	T.	85	3.12	70	3.28	171	56	W.
Winter mean.....	51	56	.....	46	.....	.....	.....	12.2	32	4.8	18.2	0.1	.....	85	3.13	73	3.32	165	55	N.
March.....	54	60	80	48	33	58	48	3.2	10	0.2	8.2	0.0	0.5	85	3.35	71	3.44	217	60	W.
April.....	55	61	88	49	40	59	51	1.8	7	0.2	6.3	0.0	0.0	85	3.46	71	3.56	267	70	W.
May.....	57	63	97	51	43	60	51	0.7	4	1.4	0.2	0.0	0.0	87	3.80	72	3.87	288	67	W.
Spring mean.....	55	61	.....	49	.....	.....	.....	5.7	21	1.8	14.7	0.0	.....	86	3.54	71	3.62	257	66	W.
June.....	59	65	100	52	47	62	54	0.2	2	0.2	2.6	0.0	0.0	89	4.03	72	4.00	360	76	W.
July.....	59	65	93	53	47	62	54	T.	0	0.0	0.0	0.0	0.0	91	4.26	77	4.42	316	71	SW.
August.....	59	65	92	53	46	62	55	T.	0	0.0	0.0	0.0	0.0	93	4.51	79	4.69	257	60	SW.
Summer mean.....	59	65	.....	53	.....	.....	.....	0.2	3	0.2	2.6	0.0	.....	91	4.27	76	4.37	311	69	SW.
September.....	61	68	94	54	47	65	56	0.3	2	1.1	0.3	0.0	0.0	89	4.46	73	4.48	246	67	W.
October.....	60	66	94	54	45	64	51	1.3	5	0.9	2.6	0.0	0.0	87	4.22	72	4.14	236	67	W.
November.....	56	62	83	51	38	59	52	2.8	7	0.5	0.3	0.0	0.0	85	3.85	71	3.81	180	57	W.
Fall mean.....	59	65	.....	53	.....	.....	.....	4.4	14	2.5	3.2	0.0	.....	87	4.18	72	4.14	221	64	W.
Annual mean.....	56	62	100	50	29	.....	.....	22.5	69	9.3	38.7	0.1	3.5	87	3.79	73	3.86	239	63	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	None.....	Aug. 26; Sept. 21, 22.	1899	None.....	Oct. 8.
1895	.....do.....	None.	1900	.....do.....	Sept. 21, 22.
1896	.....do.....	May 26.	1901	.....do.....	Oct. 12.
1897	.....do.....	Sept. 16.	1902	.....do.....	None.
1898	.....do.....	None.	1903	.....do.....	June 6; July 2; Sept. 9.

CALIFORNIA.

Central Coast: ALAMEDA COUNTY. Station: LIVERMORE.

E. G. STILL, Observer.

[Established by Southern Pacific Company March, 1870. Latitude, 37° 40' N. Longitude, 121° 45' W. Elevation, 485 feet.]

Livermore is situated in the Contra Costa Hills about midway between the Bay of San Francisco and the San Joaquin River. The general movement of the air is from west to east. There is a marked difference in temperature between Livermore and San Francisco, due chiefly to topography.

The station was originally equipped with a thermograph and rain gage of the type used by the Southern Pacific Railroad Company; but in 1902 standard Weather Bureau instruments and shelter were installed by Mr. Elmer G. Still. The shelter and rain gage are on the roof of a house, 20 feet above the ground, and 35 feet from a two-story building. The height of the thermometers is about 23 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1871, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	50	.....	84	.....	23	57	44	3.1	5	0.7	6.2
January.....	49	.....	85	.....	20	54	43	2.8	7	2.5	4.0
February.....	52	.....	89	.....	26	60	45	2.3	7	0.6	5.3
Winter mean.....	50	.....	.....	.....	.....	.....	.....	8.2	19	3.8	15.5
March.....	54	.....	90	.....	29	60	48	2.2	6	1.1	5.9
April.....	57	.....	94	.....	30	64	52	1.2	4	0.1	2.7
May.....	61	.....	104	.....	38	72	55	0.6	3	0.4	0.2
Spring mean.....	57	.....	.....	.....	.....	.....	.....	4.0	13	1.6	8.8
June.....	68	.....	108	.....	41	82	57	0.2	■	0.0	1.7
July.....	70	.....	111	.....	41	79	62	T.	0	0.0	0.0
August.....	70	.....	112	.....	45	78	62	T.	0	0.0	0.1
Summer mean.....	69	.....	.....	.....	.....	.....	.....	0.2	0	0.0	1.8
September.....	68	.....	106	.....	42	80	59	0.3	1	0.0	0.3
October.....	63	.....	104	.....	35	70	58	0.8	4	1.3	1.1
November.....	55	.....	85	.....	28	64	45	1.8	6	1.3	T.
Fall mean.....	62	.....	.....	.....	.....	.....	.....	2.9	11	2.6	1.4
Annual mean.....	60	.....	112	.....	20	.....	.....	15.3	43	8.0	27.5

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	Dec. 21.....	None.	1901	None.....	None.
1898	Jan. 27.....	Do.	1902	Dec. 29.....	July 24.
1899	None.....	Do.	1903	Jan. 16; Feb. 3, 16, 17..	None.
1900	Dec. 30, 31.....	Do.			

CALIFORNIA.

Bay District: SANTA CLARA COUNTY. Station: SAN JOSE.

A. BETTENS, Observer.

[Established by Southern Pacific Company in December, 1873. Latitude, 37° 21' N. Longitude, 121° 52' W. Elevation, 95 feet.]

San Jose lies about 50 miles southeast of San Francisco, or about 8 miles southeast of the lower end of San Francisco Bay. The Santa Clara Valley lies between the Santa Cruz Mountains on the south and west and the foothills of the Coast Range on the east. The elevation of San Jose varies from about 80 to 100 feet above sea level, and an elevation of 400 feet, except immediately south of the city, is not reached within a radius of 5 miles. Within 10 miles elevations ranging from 400 to 2,000 feet are reached.

The instruments originally used were at the railway station and of the railway type, but in December, 1900, the Weather Bureau installed standard instruments. These are now located at the St. James Hotel, the shelter with thermometers being placed in an open court and the rain gage located on the northwest corner of a building about 35 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1874, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	50		78		22	58	46	2.6	5	1.9	10.6
January.....	48		78		18	58	40	2.7	8	2.2	0.5
February.....	51		82		24	55	45	2.2	9	0.5	0.7
Winter mean.....	50							7.5	22	4.6	11.8
March.....	54		80		26	58	49	2.6	9	0.8	5.8
April.....	56		87		29	62	52	1.4	5	0.0	0.8
May.....	60		104		32	68	50	0.6	3	0.1	1.0
Spring mean.....	57							4.6	17	0.9	7.6
June.....	66		104		35	76	60	0.1	0	0.0	T.
July.....	67		100		41	71	65	0.0	0	0.0	0.0
August.....	67		101		42	70	63	T.	0	0.0	0.0
Summer mean.....	67							0.1	0	0.0	T.
September.....	65		99		37	71	62	0.2	1	0.0	0.0
October.....	60		93		32	66	56	0.9	4	0.4	4.5
November.....	54		84		25	59	48	1.5	6	0.8	1.7
Fall mean.....	60							2.6	11	1.2	6.2
Annual mean.....	58		104		18			14.8	50	6.7	25.6

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 30°.	Maximum 100° or above.	Year.	Minimum below 30°.	Maximum 100° or above.
1897	None.....	None.	1902	Jan. 10, 11, 27; Dec. 28, 30.	None.
1898	Jan. 27; Dec. 11, 12.....	Do.	1903	Jan. 12, 13, 16; Feb. 3-6, 13, 15-17; Dec. 29, 30.	June 6.
1899	Feb. 5.....	Do.			
1900	Dec. 31.....	Do.			
1901	Jan. 1, 10, 27; Feb. 1, 2, 7, 9-11; Dec. 13, 15.	June 28.			

CALIFORNIA.

Great Valley: MERCED COUNTY. Station: MERCED.

AGENT OF THE SANTA FE RAILWAY COMPANY, Observer.

[Established by Southern Pacific Company in September, 1871. Latitude, 37° 19' N. Longitude, 120° 30' W. Elevation, 173 feet.]

This station is located in the heart of the San Joaquin Valley, and its climatic conditions fairly represent those of the valley. The land is level in all directions for many miles. The station was originally equipped with the ordinary outfit furnished by the Southern Pacific Company, but in 1899 standard instruments were installed. The thermometers in use are a maximum and a minimum, exposed in a cotton-region shelter about 4 feet above the ground. The shelter is about 100 feet from the nearest building. A standard rain gage is now in use; the former gage was a small one, about 2½ inches in diameter, exposed on top of semaphore pole about 25 feet in height.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1874, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	48	.....	82	.....	16	55	43	1.7	3	0.8	3.6
January.....	47	.....	73	.....	20	53	41	2.1	6	1.1	1.6
February.....	51	.....	80	.....	23	57	43	1.3	5	T.	4.4
Winter mean.....	49	.....	.....	.....	.....	.....	.....	5.1	14	1.9	9.6
March.....	55	.....	92	.....	25	65	47	1.4	6	0.5	5.4
April.....	60	.....	96	.....	28	66	52	1.1	3	T.	5.6
May.....	67	.....	106	.....	32	74	59	0.6	2	0.5	0.9
Spring mean.....	61	.....	.....	.....	.....	.....	.....	3.1	11	1.0	11.9
June.....	75	.....	109	.....	38	80	66	0.2	0	0.0	1.7
July.....	82	.....	114	.....	46	87	76	T.	0	0.0	0.0
August.....	79	.....	120	.....	48	84	74	T.	0	0.0	0.0
Summer mean.....	79	.....	.....	.....	.....	.....	.....	0.2	0	0.0	1.7
September.....	74	.....	110	.....	38	71	62	0.2	1	0.0	0.0
October.....	65	.....	105	.....	30	72	58	0.5	2	0.1	0.5
November.....	55	.....	86	.....	26	60	50	1.2	4	1.2	T.
Fall mean.....	65	.....	.....	.....	.....	.....	.....	1.9	7	1.3	0.5
Annual mean.....	63	.....	120	.....	16	.....	.....	10.3	32	4.2	23.7

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	Dec. 20.....	None.	1902	Jan. 25-29, 31; Feb. 2.	July 23, 24.
1898	Dec. 10, 11.....	Aug. 11, 12, 14.	1903	Jan. 17, 18; Feb. 13-22,	None.
1899	Feb. 5, 6.....	July 18, 19.		25-27; Nov. 15, 17;	
1900	Dec. 30, 31.....	None.		Dec. 5-12, 25-29.	
1901	Jan. 1, 10, 31; Feb. 1, 2;	Aug. 2, 3, 12.			
	Dec. 12-19, 28.				

CALIFORNIA.

Central Coast: SANTA CRUZ COUNTY. Station: SANTA CRUZ.

RALPH C. SPRINGER, Observer.

[Established by Southern Pacific Company January, 1873. Latitude, 36° 57' N. Longitude, 122° 02' W. Elevation, 20 feet.]

Santa Cruz is located on the northern shore of Monterey Bay. To the north and east rise the Santa Cruz Mountains, which are well wooded. The valley is surrounded on three sides by mountains and faces the ocean.

The instruments originally used were of the customary railroad pattern and installed at the railroad station. Since 1902 standard Weather Bureau instruments have been used. The thermometers, maximum and minimum, are in a standard shelter, properly exposed. The height of the thermometers is 5 feet above the ground. The rain gage is close by and exposed according to regulations. The gage is 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1873, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	52	63	77	36	25	57	48	5.3	5	2.2	20.4
January.....	51	62	81	38	23	59	46	5.0	9	2.2	1.0
February.....	53	62	82	38	22	58	46	4.0	10	2.7	1.4
Winter mean.....	52	62		37				14.3	24	7.1	22.8
March.....	54	64	86	39	20	61	49	4.0	9	1.4	6.8
April.....	58	68	95	41	29	63	52	2.3	4	0.5	0.8
May.....	60	70	95	44	31	65	51	1.0	3	1.4	1.8
Spring mean.....	57	67		41				7.3	16	3.3	9.4
June.....	63	76	100	45	34	68	59	0.2	1	0.1	0.0
July.....	64	75	96	47	36	70	60	T.	11	0.0	0.0
August.....	64	76	108	48	40	69	60	T.	0	T.	0.0
Summer mean.....	64	76		47				0.2	1	0.1	0.0
September.....	63	76	101	46	37	68	59	0.5	1	2.2	0.0
October.....	60	74	95	44	33	66	56	1.8	5	0.4	9.5
November.....	56	67	89	41	29	63	52	2.7	8	0.9	2.6
Fall mean.....	60	72		44				5.0	14	3.5	12.1
Annual mean.....	58	69	108	42	22			26.8	55	14.0	44.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 30°.	Maximum 100° or above.	Year.	Minimum below 30°.	Maximum 100° or above.
1897	Jan. 1; Feb. 21; Mar. 12; Nov. 16; Dec. 20.	None.	1901	Jan. 1; Feb. 2, 10, 11; Mar. 28; Apr. 4, 7; Dec. 12-16.	None.
1898	Jan. 11, 27; Feb. 22; Mar. 29; Nov. 8, 12, 25, 26; Dec. 10-13, 22-24, 29-31.	June 24.	1902	Jan. 10, 26-31; Feb. 1, 2; Dec. 12, 13, 27, 28, 30, 31.	Do.
1899	Feb. 3-7.	None.	1903	Jan. 4, 14; Feb. 2, 3, 5, 6, 12-18; Dec. 9.	June 5.
1900	Jan. 10, 11; Dec. 28-31.	Aug. 1.			

CALIFORNIA.

Coast Valley: SAN BENITO. Station: HOLLISTER.

J. N. THOMPSON, Observer.

[Established by Southern Pacific Company September, 1873. Latitude, 36° 51' N. Longitude, 121° 25' W. Elevation, 234 feet.]

Hollister is situated near the terminus of the Tres Pinos line of the Southern Pacific Railroad, about 20 miles east of Monterey Bay. The country is, as a rule, mountainous, with valleys opening from the north. Previous to 1902 self-registering thermometers were used; but at the present time standard Weather Bureau thermometers, shelter, and rain gage are in use. The location of the instruments has remained about the same, in an open space and free from influence of buildings or trees.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1874, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	50	61	74	34	19	56	46	2.0	5	1.3	3.6
January.....	49	59	80	35	19	54	43	2.5	7	0.8	1.0
February.....	52	62	80	38	19	57	45	1.7	8	1.0	3.8
Winter mean.....	50	61		36				6.2	20	3.1	8.4
March.....	54	64	87	39	26	60	48	2.0	11	0.6	4.4
April.....	58	69	96	40	28	65	51	1.1	5	0.8	2.7
May.....	62	71	99	44	32	77	54	0.5	3	0.8	0.6
Spring mean.....	58	68		41				3.6	17	2.2	7.7
June.....	66	80	105	47	35	76	60	0.1	1	0.0	1.8
July.....	67	81	99	48	38	77	63	T.	0	0.0	0.0
August.....	67	80	105	50	41	75	61	T.	0	0.0	0.1
Summer mean.....	67	80		48				0.1	1	0.0	1.9
September.....	66	82	105	48	36	75	58	0.1	1	0.3	0.0
October.....	61	76	98	45	32	69	57	0.8	4	0.1	1.3
November.....	54	67	89	40	23	60	50	1.5	11	0.4	0.0
Fall mean.....	60	75		44				2.4	11	0.8	1.3
Annual mean.....	59	71	105	42	19			12.3	49	6.1	19.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 100° or above.	Year.	Minimum below 26°.	Maximum 100° or above.
1897	Jan. 3; Feb. 22; Dec. 3, 4, 17, 19-23, 25, 31.	None.	1901	Jan. 1, 2, 10; Feb. 2, 10, 11; Dec. 12-20.	June 27, 28.
1898	Jan. 8, 10, 11, 13, 24, 26, 27, 29, 30; Mar. 23; Nov. 26; Dec. 8, 10-13, 24, 30, 31.	June 24; Aug. 9, 14; Sept. 11.	1902	Jan. 5, 8-12, 26-30; Dec. 30, 31.	Aug. 30; Sept. 1.
1899	Feb. 4, 5, 7; Dec. 19, 20.	Sept. 13, 18.	1903	Jan. 4, 13-16; Feb. 3, 5, 6, 13-17; Dec. 5-8, 10, 28-30.	June 5, 6, 27.
1900	Dec. 31.	Aug. 1, 2; Sept. 22.			

CALIFORNIA.

San Joaquin Valley: FRESNO COUNTY. Station: FRESNO.

J. P. BOLTON, Observer.

[Established by Signal Service in August, 1887. Latitude, 36° 43' N. Longitude, 119° 40' W. Elevation, 230 feet.]

This station is near the center of the city of Fresno, in the San Joaquin Valley, about midway between the Sierra and Coast Range Mountains.

It is equipped with a barograph, a thermograph, a sunshine recorder, wet and dry bulb, and maximum and minimum thermometers. The shelter is 14.5 feet above the roof of the Farmers' National Bank, and 67 feet above the ground. The rain gage is erected 10 feet south of the shelter on a small wooden platform 54 feet above ground. The combination wind vane and anemometer support is erected on a wooden platform 13 feet south of the shelter. It has a good exposure, free from all obstructions, and is 74 feet above ground.

The tabulated data are from the following periods of observation: Humidity, fourteen years, 1889 to 1902; sunshine, five years, 1899-1903. Remainder of data is from the period of observation January 1, 1888, to December 31, 1902, fifteen years.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute mini-mum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	° F. 46	° F. 54	° F. 72	° F. 38	° F. 23	° F. 50	° F. 44	In. 1.6	7	In. 0.4	In. 4.1	P. ct. 91	Grs. 2.79	P. ct. 70	Grs. 3.06	161	53	NW.
January.....	45	53	69	37	20	51	42	1.6	7	0.4	2.3	91	2.59	71	3.00	70	24	NW.
February.....	51	61	80	40	24	54	47	1.3	7	1.2	2.0	89	2.83	57	3.00	181	60	NW.
Winter mean.....	47	56	73	38	22	51	44	4.5	21	2.0	8.4	90	2.74	66	3.01	137	46	NW.
March.....	54	66	87	43	28	59	49	1.5	7	0.7	0.3	86	3.04	40	3.11	241	64	NW.
April.....	60	74	98	47	34	67	55	0.6	4	0.0	0.1	81	3.19	34	2.80	324	82	NW.
May.....	67	82	104	53	38	72	63	0.5	3	0.8	1.2	74	3.47	27	2.95	370	86	NW.
Spring mean.....	60	74	98	48	34	69	59	2.6	14	1.5	1.6	80	3.23	37	2.95	312	77	NW.
June.....	75	91	112	59	45	80	69	0.1	1	0.0	1.2	59	3.39	19	2.73	404	92	NW.
July.....	82	100	114	64	50	85	79	T.	0	0.0	T.	50	3.39	14	2.54	429	96	NW.
August.....	81	98	113	63	51	86	75	T.	0	0.0	T.	54	3.64	16	2.82	400	95	NW.
Summer mean.....	79	96	113	62	51	84	75	0.1	1	0.0	1.2	54	3.47	16	2.70	411	94	NW.
September.....	74	89	111	58	44	83	68	0.3	1	1.1	0.8	62	3.56	22	2.98	336	90	NW.
October.....	64	78	100	50	36	68	60	0.6	3	T.	0.4	75	3.39	37	3.56	290	83	NW.
November.....	55	67	84	43	27	50	51	1.1	4	0.3	0.3	76	3.09	47	2.98	191	62	NW.
Fall mean.....	64	78	98	50	36	67	57	2.0	8	1.4	1.5	71	3.55	35	3.17	272	78	NW.
Annual mean.....	63	76	114	50	20	70	60	9.2	44	4.9	12.7	74	3.25	39	2.96	283	74	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 100° or above.	Year.	Minimum below 32°.	Maximum 100° or above.
1894	Jan. 3, 5-10, 17, 19; Feb. 2, 11, 22; Dec. 2, 4, 13.	June 30; July 2-9, 11-13, 17, 18, 20-24, 30, 31; Aug. 1-4, 14, 15, 19, 20, 22, 25-28; Sept. 10, 22, 23.	1899	Jan. 4, 5, 9; Feb. 3-7...	June 9-11, 14-18, 23, 28-30; July 1-4, 9-11, 14, 15-20, 23-27; Aug. 1; Sept. 10, 12, 13, 18-21, 24, 25.
1895	Jan. 3, 7, 28-30; Dec. 4, 18, 23, 25-27, 29-31.	June 5, 12, 19, 20; July 7-9, 14-16, 21-25; Aug. 1-7, 13-20, 24, 25.	1900	Dec. 31.....	June 5, 6, 27, 28; July 5-13, 15-19, 27-31; Aug. 1-3, 25.
1896	Jan. 1-6; Feb. 4; Nov. 27, 29, 30; Dec. 1.	May 26, 27; June 11-17, 20-26; July 3-21, 24, 31; Aug. 14-16, 24-26; Sept. 4-6.	1901	Jan. 1, 2, 10; Dec. 11-18, 21, 27, 29.	June 27-30; July 5, 6, 9-12, 18-20, 31; Aug. 1-3, 5-17; Sept. 15.
1897	Jan. 3, 6; Feb. 23, 24; Mar. 13, 21, 30; Nov. 25-27; Dec. 1, 4, 19-26, 28-31.	June 6, 7, 12, 29, 30; July 1, 10-20, 24-31; Aug. 1, 2, 5, 6, 13, 14, 16-24.	1902	Jan. 11-13, 18, 26-30; Feb. 1; Dec. 14, 15, 20, 21, 28-31.	June 8-10, 16, 18-23, 29; July 9-13, 17-24; Aug. 2-8, 31; Sept. 1, 2, 4, 7, 8.
1898	Jan. 1, 2, 4, 10-14, 18, 21, 24, 27, 29, 30.	June 24-29; July 2-7, 12, 15, 18, 19, 24-31; Aug. 1, 8-15, 22-24; Sept. 11, 12, 16, 17.	1903	Jan. 10, 11, 15-18; Feb. 2, 3, 6, 13-17; Dec. 5-7, 9-11, 26, 27.	May 31; June 5-8, 24-28; July 4, 27, 30, 31; Aug. 1, 2, 4, 6-10, 12, 13, 17, 18, 20, 31; Sept. 1-4.

CALIFORNIA.

East Sierra District: INYO COUNTY. Station: INDEPENDENCE.

CHARLES C. GARRETT, Observer.

[Established in December, 1894; discontinued in March, 1896; reestablished in March, 1898. Latitude, 36° 48' N. Longitude, 118° 12' W. Elevation, 3,884 feet.]

This station is located on the third floor of the Norman House, on the principal street of the village of Independence. The town is situated in a long, deep valley, and is nearly midway between two high ranges of mountains—the Sierras, about 5 miles to the west, and the Inyos, about 6 miles to the east. The former range has an average elevation of over 12,000 feet, and the latter of over 10,000 feet above sea level. There is a gradual slope from the town to Owens River, about 4 miles to the east.

The thermometers are exposed in a standard instrument shelter on the roof of the office building at an elevation of 51 feet above the ground. The height of the rain gage is 43 feet; the anemometer, 58 feet; the wind vane, 60 feet, and the the sunshine recorder, 45 feet above the ground. The exposure of the instruments is free and unobstructed.

Observations have been taken twice daily since the establishment of the station, with the exception of the period between March, 1896, and March, 1898, during which time the station was discontinued.

Tabulated data are from the full period of observation, seven years, December 1, 1894, to March 12, 1896, and March 5 1898, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.						Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute maxi-mum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Snow.		Relative, 8 a.m.	Absolute, 8 a.m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
												Average depth.	Greatest depth in 24 hours.							
December.....	42	53	70	30	15	45	38	0.4	3	0.0	0.1	0.4	2.3	71	1.40	34	1.20	221	72	NW.
January.....	41	52	69	31	10	47	38	1.0	5	0.7	2.8	2.1	5.3	54	1.33	37	1.36	234	75	NW.
February.....	45	56	75	33	11	48	38	0.6	2	0.3	0.6	0.6	2.2	48	1.27	28	1.27	211	70	NW.
Winter mean.....	43	54	.....	31	.....	.....	.....	2.0	10	1.0	3.5	3.1	.....	50	1.33	33	1.28	222	72	NW.
March.....	49	60	78	37	19	55	44	0.3	2	0.3	T.	T.	0.1	42	1.24	18	0.90	272	73	W.
April.....	57	69	87	44	28	62	52	0.2	2	0.2	T.	0.1	0.4	35	1.28	15	1.05	344	87	NW.
May.....	63	76	89	50	34	66	60	0.1	2	T.	0.4	0.0	T.	36	1.09	15	1.32	372	85	NW.
Spring mean.....	56	68	.....	44	.....	.....	.....	0.6	6	0.5	0.4	0.1	.....	38	1.40	16	1.09	329	82	NW.
June.....	74	87	101	60	38	75	72	0.1	1	T.	0.0	0.0	0.0	27	1.71	12	1.53	402	91	NW.
July.....	79	92	105	66	49	80	77	T.	1	0.0	0.1	0.0	0.0	23	1.78	10	1.48	408	91	SE.
August.....	76	89	104	62	46	80	72	0.1	2	0.0	0.3	0.0	0.0	31	2.17	14	1.89	354	84	SE.
Summer mean.....	76	89	.....	63	.....	.....	.....	0.2	4	T.	0.4	0.0	.....	27	1.89	12	1.63	388	89	SE.
September.....	69	84	97	56	34	75	64	0.1	1	T.	0.0	0.0	0.0	28	1.61	13	1.47	328	88	NW.
October.....	60	73	88	47	29	64	55	0.3	2	0.4	0.6	0.0	0.0	38	1.60	20	1.50	310	89	NW.
November.....	50	62	81	37	24	53	45	0.5	3	T.	0.2	0.5	3.2	45	1.38	28	1.36	236	77	NW.
Fall mean.....	60	73	.....	47	.....	.....	.....	0.9	6	0.4	0.8	0.5	.....	37	1.53	20	1.44	291	85	NW.
Annual mean.....	59	71	105	46	10	.....	.....	3.7	26	1.9	5.1	3.7	5.3	38	1.54	20	1.36	308	82	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 22°.	Maximum 100° or above.	Year.	Minimum below 22°.	Maximum 100° or above.
1894	Dec. 4 (record incomplete).	Record incomplete.	1899	Jan. 1, 4-6, 9, 13, 14; Feb. 3-7; Dec. 14, 15, 20.	July 18, 19.
1895	Jan. 20, 26-28; Dec. 16-21, 23-25, 29-31.	Aug. 5, 6.	1900	Dec. 31.	July 11.
1896	Jan. 1, 2, 5 (record incomplete).	Record incomplete.	1901	Jan. 1-3, 9-11; Feb. 2, 10; Dec. 12, 13.	June 29.
1897	No record.	No record.	1902	Jan. 20, 25-31; Feb. 1; Dec. 15, 19, 31.	July 24; Aug. 2.
1898	Mar. 14, 18, 22, 23; Dec. 11-13, 24, 30, 31 (record incomplete).	July 15, 26-31; Aug. 1, 10, 11.	1903	Jan. 30; Feb. 3, 5, 6, 8, 12-15.	.....

CALIFORNIA.

Central Coast: MONTEREY COUNTY. Station: KING CITY.

HARRY E. WETZEL, Observer.

[Established by Southern Pacific Railroad Company, October, 1896. Latitude, 36° 12' N. Longitude, 121° 06' W. Elevation, 333 feet.]

This station is located in the Salinas Valley, about midway between its northern and southern limits. The general trend of the valley is from southeast to northwest.

This station had the usual Southern Pacific Company outfit, consisting of a small thermometer in a perforated box and the usual rain gage, but in June, 1902, a standard Weather Bureau outfit, comprising maximum thermometer, minimum thermometer, rain gage and support, and a shelter, were installed.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; also from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1887, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	49		80		20	61	44	2.2	2	0.3	8.1
January.....	48		80		15	62	42	2.0	5	0.5	0.9
February.....	49		83		17	57	45	1.5	6	1.3	1.3
Winter mean.....	49							5.7	13	2.1	10.3
March.....	54		89		27	61	47	1.8	6	0.5	6.1
April.....	56		102		28	63	50	0.5	3	0.1	0.3
May.....	60		109		32	66	50	0.3	2	0.2	0.5
Spring mean.....	57							2.6	11	0.8	6.9
June.....	64		112		36	69	59	T.	0	0.0	0.0
July.....	67		110		38	70	57	0.0	0	0.0	0.0
August.....	66		114		41	73	57	0.0	0	0.0	0.0
Summer mean.....	66							T.	0	0.0	0.0
September.....	66		108		36	74	58	0.2	0	0.0	0.0
October.....	59		100		30	65	52	0.8	3	0.0	4.2
November.....	54		90		20	62	46	1.5	3	0.2	2.7
Fall mean.....	60							2.5	6	0.2	6.9
Annual mean.....	58		114		15			10.8	50	3.1	24.1

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	None.....	None.	1902	Jan. 28, 30; Dec. 14, 28, 30, 31.	None.
1898	Jan. 10-13, 26, 27, 29; Dec. 10, 12, 31.	Do.	1903	Jan. 13-16, 18, 30; Feb. 3, 5, 6, 13-18; Nov. 9; Dec. 5-10, 26, 28.	Do.
1899	Feb. 5.....	Do.			
1900		Aug. 1.			
1901	Jan. 1, 2; Dec. 13-16...	None.			

CALIFORNIA.

Great Valley: TULARE COUNTY. Station: VISALIA.

AGENT OF THE SANTA FE RAILWAY COMPANY, Observer.

[Established by the Southern Pacific Company, January, 1870. Latitude, 36° 20' N. Longitude, 119° 17' W. Elevation, 334 feet.]

Visalia is situated in the southern end of the San Joaquin Valley near the foothills of the Sierra.

From January 1, 1888, to July 31, 1898, records were kept by Mr. L. V. Nanscauwen. In June, 1899, the Valley Railroad installed regular Weather Bureau instruments. Maximum and minimum thermometers, exposed in a regulation cotton region shelter 4 feet above the ground, are now in use. The shelter is 100 feet west of the south end of the station, which is the nearest building. The rain gage in use is a small gage 2½ inches in diameter, and is exposed on the top of a semaphore 25 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1888, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	45	58	75	33	19	48	41	1.4	6	0.2	3.2
January.....	44	57	78	34	17	50	37	2.0	6	1.8	0.7
February.....	49	64	86	40	21	53	46	1.2	5	0.6	0.4
Winter mean.....	46	60	.....	36	.....	.....	.....	4.6	17	2.6	4.3
March.....	52	69	83	39	22	58	47	1.7	5	2.2	3.5
April.....	58	73	104	45	30	63	51	0.8	3	0.2	0.5
May.....	66	82	103	50	35	69	63	0.6	2	0.0	1.2
Spring mean.....	59	75	.....	44	.....	.....	.....	3.1	11	2.4	5.2
June.....	74	94	108	56	38	81	67	0.1	1	0.1	0.0
July.....	80	100	113	57	45	85	75	0.0	1	0.0	0.0
August.....	79	99	110	56	49	85	73	0.0	1	0.0	0.0
Summer mean.....	78	98	.....	56	.....	.....	.....	0.1	2	0.1	0.0
September.....	71	92	107	51	37	80	65	0.5	1	0.1	0.0
October.....	63	82	98	44	31	67	58	0.6	1	0.0	4.1
November.....	52	69	86	41	23	57	41	0.9	3	0.4	0.7
Fall mean.....	62	81	.....	46	.....	.....	.....	2.0	6	0.5	4.8
Annual mean.....	61	78	113	45	17	.....	.....	9.8	36	5.6	14.3

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	None.	None.	1902	Jan. 11, 12, 15, 16, 19, 20, 22, 25-31.	July 12, 13, 18, 21, 23.
1898	Jan. 24, 26, 27.	Do.	1903	Jan. 1, 15-19; Mar. 6, 7; Dec. 5-12, 15, 24-30.	None.
1899	Jan. 5; Feb. 4-9.	July 19.			
1900	Dec. 27, 28, 30, 31.	None.			
1901	Jan. 1, 8; Dec. 9-21, 27-29.	Aug. 12.			

CALIFORNIA.

Central Coast District: SAN LUIS OBISPO COUNTY. Station: SAN LUIS OBISPO.

J. R. WILLIAMS, Observer.

[Established by Signal Service June 1, 1885. On April 1, 1886, the office and records were burned. The office was reestablished by the Weather Bureau August 1, 1894. Latitude, 35° 18' N. Longitude, 120° 30' W. Elevation, 194 feet.]

The town lies between the Santa Lucia Mountains, 5 miles to the east and north, and the Pacific Ocean, 8 miles to the west and south. The mountains range in elevation from 1,700 to 2,800 feet. A portion of the town is built on the base of San Luis Mountain, which is 1,292 feet high.

The office has the standard equipment. The thermometers are 11 feet above ground, the top of the rain gage 3 feet, and the anemometer cups 46 feet.

MONTHLY, SEASONAL, AND ANNUAL MEANS, AUGUST 1, 1894, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.				Mean humidity.				Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	
December.....	54	66	82	41	24	56	51	In.	5	In.	In.	P. ct.	Grs.	P. ct.	Grs.	N.
January.....	53	63	83	42	22	56	48		8	0.6	4.5	71	2.42	53	2.94	N.
February.....	54	66	86	43	25	56	49		6	1.4	5.6	76	2.70	60	3.33	N.
Winter mean.....	54	65		42				10.3	19	4.2	10.4	74	2.64	58	3.16	N.
March.....	54	65	90	44	28	58	51	3.3	8	0.9	7.6	80	2.93	62	3.44	W.
April.....	56	68	97	45	32	60	51	1.4	4	0.1	1.5	79	3.00	60	3.56	W.
May.....	58	69	98	47	34	62	54	0.4	2	1.0	0.1	82	3.46	65	3.79	W.
Spring mean.....	56	67		45				5.1	14	2.0	9.2	80	3.13	62	3.66	W.
June.....	63	76	105	50	37	64	61	0.1	0	T.	0.9	84	3.80	56	4.19	W.
July.....	65	78	99	51	42	68	61	T.	0	0.0	0.0	87	4.08	54	4.31	W.
August.....	65	78	106	53	40	66	64	T.	0	0.0	0.0	88	4.27	57	4.40	W.
Summer mean.....	64	77		51				0.1	0	T.	0.9	86	4.05	56	4.30	W.
September.....	64	78	100	51	41	66	63	0.2	0	0.2	0.0	82	3.84	58	4.34	W.
October.....	62	75	98	50	38	65	59	1.6	4	0.4	3.9	81	3.67	61	4.14	N.
November.....	58	70	94	46	28	60	56	1.9	5	0.1	1.9	75	3.06	61	3.75	N.
Fall mean.....	61	74		49				3.7	9	0.7	5.8	79	3.52	60	4.08	N.
Annual mean.....	59	71	106	47	22			19.2	42	6.9	26.3	80	3.33	59	3.80	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD AUGUST 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894		Aug. 25-27; Sept. 14, 15; Oct. 3, 4.	1899	Jan. 1, 6, 9, 13; Feb. 3, 4, 6.	June 21; July 8, 9; Sept. 13, 19, 26, 27; Oct. 7-9.
1895	Mar. 16, 17; Nov. 22, 24, 26; Dec. 17, 29, 30.	May 10; June 4, 18-20; July 6; Aug. 1; Sept. 23-26; Oct. 2; Nov. 18, 19.	1900	Dec. 29.	June 19; July 11; Aug. 1, 2; Sept. 18, 19, 21, 28, 29; Oct. 8, 9; Nov. 1, 12.
1896	Jan. 5; Mar. 4.	May 25; June 14; July 12, 30, 31; Sept. 16, 25; Oct. 2-4.	1901	Jan. 2, 3; Feb. 2; Dec. 12-14, 16, 17, 19, 20.	June 27, 28; July 18, 31; Aug. 26; Sept. 13; Oct. 13, 21, 22.
1897	Jan. 3, 16; Feb. 21; Nov. 16, 27; Dec. 3-7, 15, 17, 19-24, 31.	Apr. 9, 10; June 5, 12; Aug. 20, 21; Sept. 22, 23.	1902	Jan. 20, 27-31; Mar. 25; Dec. 15.	June 22; July 12, 15; Sept. 1, 2, 6.
1898	Jan. 1, 11, 13, 15, 22, 24, 29; Mar. 18, 19, 23, 24, 26; Dec. 5, 10-13, 23, 24.	Apr. 12, 13, 23-26; June 3-5; Aug. 9, 11-14; Sept. 8, 10, 11; Oct. 13, 14, 17, 18, 26, 28; Nov. 5.	1903	Jan. 30; Feb. 3, 4, 14-18.	June 5, 24-26; Aug. 16; Sept. 8, 10; Oct. 12, 13.

CALIFORNIA.

Great Valley: KERN COUNTY. Station: BAKERSFIELD.

AGENT OF THE SANTA FE RAILWAY, Observer.

[Established by San Joaquin Valley Railroad June 2, 1889. Latitude, 35° 22' N. Longitude, 119° 0' W. Elevation, 404 feet.]

Records were originally kept at the Southern Pacific Railroad depot, beginning November, 1888. Bakersfield is situated at the southern end of San Joaquin Valley, which is level for many miles. To the south and east are the ridges of the Tehachapi Mountains.

The original instruments were of the Southern Pacific type, but in 1899 standard rain gages, thermometers, and shelters were installed along the line of the San Joaquin Valley Railroad under the supervision of the Weather Bureau. The shelter used is a cotton-region shelter, mounted on posts, 4 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JUNE 2, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	48		76		19	54	43	0.8	2	0.1	1.8
January.....	48		74		22	54	43	1.1	4	1.4	0.6
February.....	52		88		20	56	45	0.5	4	0.3	0.2
Winter mean.....	49							2.4	10	1.8	2.6
March.....	58		87		23	63	50	0.9	5	0.3	1.9
April.....	65		99		30	70	58	0.2	2	0.1	0.2
May.....	73		103		36	79	65	0.2	2	0.2	0.2
Spring mean.....	65							1.3	9	0.6	2.3
June.....	82		112		43	88	75	0.1	0	0.0	0.0
July.....	89		114		46	92	76	0.0	0	0.0	0.0
August.....	85		113		44	89	74	0.0	0	0.0	0.0
Summer mean.....	85							0.1	0		
September.....	76		108		31	79	69	0.1	1	0.6	0.0
October.....	66		97		31	71	60	0.5	2	0.0	2.0
November.....	56		88		30	59	54	0.4	3	0.3	0.2
Fall mean.....	66							1.0	6	0.9	2.2
Annual mean.....	66		114		19			4.8	25	3.3	7.1

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1897	None.....	None.	1902	Jan. 11-13, 16, 17, 26, 31; Feb. 1, 2.	July 23, 24.
1898	do.....	July 30; Aug. 12-14.			
1899	Dec. 22, 25.	None.	1903	Jan. 1, 7, 16-18; Feb. 14-17; Dec. 6, 8-11, 13-15, 24-31.	None.
1900	Feb. 11; Dec. 28-31.	Do.			
1901	Feb. 1-3, 10-15; Mar. 12, 13, 15; Dec. 12-19, 21, 25, 27-29.	June 29; July 25; Aug. 3, 12.			

CALIFORNIA.

South Coast: SANTA BARBARA COUNTY. Station: SANTA BARBARA.

JAMES A. DODGE, Observer.

[Established by Smithsonian Institution March, 1864. Latitude, 34° 23' N. Longitude, 119° 40' W. Elevation, 130 feet.]

Santa Barbara occupies the central position on that part of the coast of California which faces southward. For a detailed description of the climate of this section the reader is referred to Bulletin L of the Weather Bureau, "Climatology of California." The city itself is encircled by foothills, except to the south, where it fronts the sea.

The instrument shelter in use is of the old pattern, with a double roof, and has an excellent exposure on the roof of the barn, about 15 feet above the ground. The rain gage is in the garden; its top is 3 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1881, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	Inches.		Inches.	Inches.
December.....	56	68	84	45	32	60	52	3.2	2	0.4	6.6
January.....	53	64	84	44	28	58	48	3.7	4	0.6	6.3
February.....	55	64	85	44	29	61	50	3.1	5	1.0	9.7
Winter mean.....	55	65		44				10.0	11	2.0	22.6
March.....	55	65	86	46	34	59	53	2.3	5	0.3	9.8
April.....	58	67	95	48	38	65	55	1.2	2	0.0	2.6
May.....	60	69	100	50	40	65	56	0.4	3	1.2	0.4
Spring mean.....	58	67		48				3.9	10	1.5	12.8
June.....	63	69	94	55	46	70	61	0.1	1	0.0	1.6
July.....	65	74	96	56	48	67	61	T.	0	T.	0.0
August.....	67	75	97	58	52	72	65	0.0	0	0.0	0.0
Summer mean.....	65	73		56				0.1	1	T.	1.6
September.....	66	74	98	56	49	69	60	0.2	1	3.2	0.0
October.....	63	72	96	54	47	65	59	0.8	2	0.1	1.0
November.....	59	70	90	50	40	64	53	1.6	2	0.0	0.8
Fall mean.....	63	72		53				2.6	5	3.3	1.8
Annual mean.....	60	69	100	50	28			16.6	27	6.8	38.8

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1897	Dec. 20.....	Sept. 21, 22.	1900	None.....	July 22, 23; Nov. 12.
1898	None.....	Apr. 12, 13, 24, 25; June 3, 4; Aug. 12, 13; Sept. 11.	1901	do.....	Oct. 21, 22.
1899	Feb. 6.....	Oct. 8.	1902	do.....	Sept. 26.
			1903	Feb. 3.....	Oct. 12, 13.

CALIFORNIA.

Southern Coast: LOS ANGELES COUNTY. Station: LOS ANGELES.

L. F. FRANKLIN, Local Forecaster.

[Established by the Signal Service July 1, 1877. Latitude, 34° 3' N. Longitude, 118° 15' W. Elevation, 287 feet.]

Los Angeles is located in a valley of the same name, 18 miles from the ocean. Its chief topographical feature is a range of hills of moderate elevation on the western side, with a general trend north to south which separates it from the Cahuenga Valley that extends to the ocean on the west. The eastern side is slightly undulating and broadens out into the Los Angeles Valley, which reaches the ocean on the south.

A fact to be considered in consulting the temperature data is that the instruments from which the data was obtained were located on roofs of buildings 60 to 70 feet above the ground, exposed in standard shelters and above the stratum of colder air, which settles in low ground. The temperature so obtained is appreciably different from that on the surface, lower maxima and higher minima resulting. For the above reason the temperature seldom falls to freezing or below at the Weather Bureau station, while in the low grounds it frequently reaches 32°, and at times considerably lower in winter, when a much higher temperature obtains at the station; this corresponds to the foothill belts, where frost seldom if ever occurs. Frost occurs in the low sections of the city, when in the hill portions there is not the least trace, and where delicate flowers, such as calla lilies and roses, may be seen in full flower.

The present elevations of the instruments above ground are: Thermometers, 74 feet; rain gage, 66 feet; anemometer, 82 feet.

The tabulated record of humidity is from fifteen years' observations; sunshine from seven years; remainder from full period of observation, July 1, 1877, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the max-ima.	Absolute max-imum.	Mean of the min-ima.	Absolute min-imum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	56	67	89	46	30	61	53	3.3	6	0.1	4.6	61	2.49	64	3.56	245	80	NE.
January.....	54	64	87	44	30	58	49	2.8	6	1.3	3.2	67	2.46	64	3.32	214	68	NE.
February.....	55	66	88	45	28	60	51	2.8	6	0.5	13.4	73	2.77	63	3.38	223	73	NE.
Winter mean.....	55	66	.....	45	.....	.....	.....	8.9	18	1.9	21.2	67	2.57	64	3.42	227	74	NE.
March.....	57	67	99	47	31	62	52	2.7	7	1.0	12.4	80	3.15	65	3.73	255	69	W.
April.....	60	70	99	49	38	63	56	1.1	4	0.0	3.5	82	3.46	63	3.87	275	70	W.
May.....	63	73	103	52	40	66	60	0.5	3	1.8	0.3	87	4.08	65	4.27	239	60	W.
Spring mean.....	60	70	.....	49	.....	.....	.....	4.3	14	2.8	16.2	83	3.56	64	3.96	263	66	W.
June.....	67	78	105	56	46	71	63	0.1	1	T.	1.4	87	4.52	61	4.71	280	67	W.
July.....	71	83	109	59	49	74	65	T.	1	T.	0.1	90	5.17	62	5.28	341	78	W.
August.....	72	84	106	60	50	75	68	T.	0	T.	T.	87	5.34	63	5.53	328	76	W.
Summer mean.....	70	82	.....	58	.....	.....	.....	0.1	1	T.	1.5	88	5.01	62	5.17	319	74	W.
September.....	70	82	108	57	44	74	66	T.	0	0.0	T.	82	4.71	63	5.20	282	76	W.
October.....	64	76	102	52	40	68	60	0.8	3	0.1	0.3	78	3.91	68	4.77	263	75	W.
November.....	60	72	96	48	34	66	56	1.5	3	T.	1.1	64	2.90	65	3.99	245	79	W.
Fall mean.....	65	77	.....	52	.....	.....	.....	2.3	6	0.1	1.4	75	3.84	65	4.65	263	77	W.
Annual mean.....	62	74	109	51	28	.....	.....	15.6	40	4.8	40.3	78	3.75	64	4.30	268	73	W.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum below 32°.	Maximum 90° or above.	Year.	Minimum below 32°.	Maximum 90° or above.
1894	Jan. 6.....	Aug. 25-27; Sept. 14-17; Oct. 2-4; Nov. 14.	1899	None.....	Mar. 6; Apr. 20, 21; July 7, 9, 19; Sept. 13, 17-19; Oct. 8, 9.
1895	None.....	June 4; Sept. 11, 12, 23-28; Oct. 2; Nov. 18, 19.	1900	.....do.....	July 11, 12, 22-24; Aug. 1, 2; Sept. 20, 29; Nov. 2, 3, 6, 10-13.
1896	.....do.....	May 24-26; June 11-13; July 13; Aug. 29, 30; Sept. 16.	1901	Dec. 13.....	June 27, 28; Aug. 2, 24-26; Oct. 21, 22.
1897	Jan. 21.....	Aug. 19-23; Sept. 18, 20-23; Nov. 18.	1902	None.....	June 23; July 13, 15; Aug. 1; Sept. 26.
1898	Jan. 26, 27.....	Apr. 12, 13, 24-26; June 3-5; July 14, 27; Aug. 10-15, 20, 21; Sept. 7-12, 16, 17; Oct. 17, 25.	1903	.....do.....	Aug. 18-20; Sept. 8, 16; Oct. 12, 13, 18; Nov. 26, 27.

CALIFORNIA.

Southern California: SAN BERNARDINO COUNTY. Station: REDLANDS.

W. M. NEWTON, Observer.

[Established by Southern Pacific Company in 1899. Latitude, 34° 3' N. Longitude, 117° 11' W. Elevation, 1,362 feet.]

Redlands is situated on the southern slope of the San Bernardino Valley. Mount San Bernardino and Mount San Geronio, two of the highest peaks in southern California, wall in the valley to the north. The distance to Los Angeles westward is 66 miles.

The instruments and shelter in use are of standard pattern. The shelter stands in a vacant lot 60 feet north of the nearest building. Elevation, 5 feet 6 inches above the ground. The rain gage is exposed on the top of the shelter, about 6 feet above the ground.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1893, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	53		84		27	56	50	2.9	2	0.6	13.7
January.....	51		85		26	57	45	2.6	6	2.0	0.7
February.....	52		88		25	58	47	2.7	5	0.8	1.5
Winter mean.....	52							8.2	13	3.4	15.9
March.....	55		95		32	61	50	2.6	8	1.0	5.7
April.....	61		100		36	67	56	0.6	4	0.3	1.0
May.....	66		95		39	69	61	0.8	3	2.2	0.6
Spring mean.....	61							4.0	15	3.5	7.3
June.....	74		110		42	80	68	0.1	1	0.0	0.0
July.....	78		113		50	82	73	T.	0	0.1	0.0
August.....	78		112		48	83	72	0.5	1	0.0	0.3
Summer mean.....	77							0.6	2	0.1	0.3
September.....	72		109		41	79	68	0.4	1	0.0	0.2
October.....	65		99		39	69	60	0.7	3	T.	1.2
November.....	59		93		32	62	54	0.9	3	0.2	0.5
Fall mean.....	65							2.0	7	0.2	2.3
Annual mean.....	64		113		25			14.8	37	7.2	22.8

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 26°.	Maximum 110° or above.	Year.	Minimum below 26°.	Maximum 110° or above.
1898	None.....	July 26; Aug. 9, 20.	1901	Jan. 2.....	None.
1899	do.....	None.	1902	None.....	June 10.
1900	do.....	Do.	1903	Feb. 14.....	None.

CALIFORNIA.

Mojave Desert: SAN BERNARDINO COUNTY. Station: NEEDLES.

JOHN DENAIRE, Observer.

[Established by Southern Pacific Company in August, 1883. Latitude, 34° 50' N. Longitude, 114° 36' W. Elevation, 477 feet.]

Needles is situated in the valley of the Colorado on the west bank of the river which forms the boundary between California and Arizona. There are hills on all sides of the station.

The instruments originally used were those of the railroad system, but since 1900 standard instruments have been used. Maximum and minimum thermometers are exposed in a standard shelter under the porch roof on the northeast side of the passenger station of the Santa Fe Railroad. The rain gage, of standard pattern, is exposed in the open about 6 feet above the ground and 5 feet distant from the nearest building, which is a small one-story shed.

Monthly mean temperatures were computed from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, JANUARY 1, 1892, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
	° F.	° F.	° F.	° F.	° F.	° F.	° F.	In.		In.	In.
December.....	53	64	80	40	27	59	48	0.5	1	0.0	0.7
January.....	52	65	75	41	26	58	47	0.6	2	1.4	T.
February.....	58	72	83	47	23	61	50	0.2	0	T.	0.0
Winter mean.....	54	67	.....	43	.....	.....	.....	1.3	3	1.4	0.7
March.....	65	76	89	52	37	70	61	0.2	1	0.1	0.6
April.....	72	86	105	60	47	77	70	0.1	0	0.1	0.0
May.....	80	93	109	59	48	85	76	0.1	0	0.0	0.3
Spring mean.....	72	85	.....	57	.....	.....	.....	0.4	1	0.2	0.9
June.....	88	102	115	77	61	92	80	T.	0	0.0	0.0
July.....	94	107	116	84	70	98	93	0.4	1	T.	1.4
August.....	92	103	114	80	68	97	89	0.2	2	T.	0.5
Summer mean.....	91	104	.....	80	.....	.....	.....	0.6	3	T.	1.9
September.....	85	100	110	74	58	87	81	0.1	1	0.2	T.
October.....	72	83	97	61	46	78	70	0.1	1	T.	0.0
November.....	60	72	86	50	35	70	57	0.2	2	T.	1.2
Fall mean.....	72	85	.....	62	.....	.....	.....	0.4	4	0.2	1.2
Annual mean.....	73	85	116	60	23	.....	.....	2.7	11	1.8	4.7

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1897, TO DECEMBER 31, 1903.

Year.	Minimum below 30°.	Maximum 110° or above.	Year.	Minimum below 30°.	Maximum 110° or above.
1897	Dec. 19.....	June 7; July 10, 12-17, 21, 25-27, 29; Aug. 1, 5, 6, 17-19.	1901	Jan. 2, 4, 6, 8, 10, 14, 15, 19-22, 25-28, 30, 31.	June 22, 28, 29; July 6-9, 12, 14, 18-20, 24-27; Aug. 8, 9, 26.
1898	Jan. 24, 25; Dec. 30, 31.	June 18, 26-29; July 13, 14, 25-29; Aug. 10, 12, 14, 15.	1902	Dec. 4.....	June 21-25; July 11-15, 22; Aug. 1-3, 6; Sept. 6.
1899	Jan. 1; Feb. 5, 6.....	June 17, 29, 30; July 1-4, 8, 9, 26, 27.	1903	Feb. 5-8, 10, 13, 14.....	June 26-28; July 6, 9-13, 28, 30; Aug. 4, 6, 17, 19, 20.
1900	Dec. 14.....	June 20, 22, 27-30; July 7-14; Aug. 2.			

CALIFORNIA.

Colorado Desert: RIVERSIDE COUNTY. Station: SALTON.

AGENT OF THE SOUTHERN PACIFIC RAILWAY COMPANY, OBSERVER.

[Established by Southern Pacific Company in February, 1889. Latitude, 33° 25' N. Longitude, 115° 59' W. Depression, 263 feet.]

Salton is situated in the Colorado Desert, near the southern line of Riverside County, on the northern edge of Salton or Old Dry Lake, about 100 miles northwest of Yuma.

The instrumental outfit was that usually furnished by the railroad. In 1902 the Weather Bureau installed standard maximum and minimum thermometers and a standard shelter. The rain gage, however, still remains of the old pattern. Some very high temperatures are recorded at this station. On July 13, 1900, a maximum temperature of 126° was observed, and in June, 1896, a temperature of 128° occurred. The highest temperatures recorded in the United States are those of neighboring stations: Volcano, 130°, in June, 1896, and Mammoth, 130°, August 17, 1885.

Monthly mean temperatures were computed from observations made at 7 a. m., 2 p. m., and 9 p. m.; also from the daily extremes.

MONTHLY, SEASONAL, AND ANNUAL MEANS, FEBRUARY 1, 1889, TO DECEMBER 31, 1903.

Month.	Temperature.							Precipitation.			
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.
December.....	° F. 56	° F. 110	° F. 110	° F. 18	° F. 66	° F. 66	° F. 46	In. 0.6	1	In. 0.0	In. 0.0
January.....	56	112	112	22	66	66	49	0.4	1	0.0	2.8
February.....	59	100	100	28	68	68	50	0.6	1	0.0	0.4
Winter mean.....	57							1.6	3	0.0	3.2
March.....	66	110		36	74	74	58	0.2	1	0.0	0.6
April.....	76	117		45	82	82	70	0.0	0	0.0	0.0
May.....	83	124		48	94	94	73	0.1	0	0.0	0.1
Spring mean.....	75							0.3	1	0.0	0.7
June.....	94	128		60	101	101	87	0.0	0	0.0	0.0
July.....	99	126		66	107	107	88	0.2	0	0.0	0.0
August.....	97	124		65	107	107	89	0.1	0	0.0	0.0
Summer mean.....	97							0.3	0	0.0	0.0
September.....	91	120		60	100	100	84	0.1	0	0.0	0.0
October.....	79	112		46	85	85	73	0.1	0	T.	0.0
November.....	67	99		34	71	71	59	0.1	0	T.	0.0
Fall mean.....	79							0.3	0	T.	0.0
Annual mean.....	77	128		18				2.5	4	T.	3.9

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1898, TO DECEMBER 31, 1903.

Year.	Minimum below 30°.	Maximum 120° or above.	Year.	Minimum below 30°.	Maximum 120° or above.
1898	Jan. 11, 30.....	June 20, 26; July 11-13, 25, 26, 28, 29; Aug. 10, 13, 14, 17.	1901	None.....	June 28; Aug. 7, 9, 25-27.
1899	Jan. 1; Feb. 7.....	June 16-18, 29, 30; July 1, 28.	1902	Jan. 28.....	June 22-25; July 12; Aug. 1.
1900	None.....	July 7-13, 24, 25.	1903	Feb. 5; Dec. 10, 16, 17, 23, 26-29.	June 28; Aug. 19; Sept. 3, 4.

CALIFORNIA.

Southern Coast District: SAN DIEGO COUNTY. Station: SAN DIEGO.

FORD A. CARPENTER, Observer.

[Established by Signal Service November 1, 1871. Latitude, 32° 43' N. Longitude, 117° 10' W. Elevation, 40 feet.]

This station is in the business center of the city of San Diego and about one-third the distance between the gradual slope from the bay of San Diego and the hills a mile away which form the northwest boundary of the slope. The elevation of the hills in this vicinity on the north and east sides of the slope probably does not exceed 300 feet. From north-northwest to south there is a free expanse of bay, with the Pacific Ocean in the distance.

The thermometers are exposed 94 feet above ground in a standard shelter on the roof of the Keating Building. The rain gage is also on the roof of the office building and has an elevation of 86 feet above ground. The anemometer is 102 feet above ground. The office building has a flat roof, and the building itself is much higher than surrounding buildings in the immediate neighborhood.

Tabulated data are from the following periods of observation: Sunshine, fourteen years; humidity, fifteen years; mean monthly and mean annual temperatures, highest and lowest monthly means, and all precipitation data except number of days with 0.01 inch, fifty-four years, 1850-1903. Remainder of data is from thirty-two years of observation, November 1, 1871, to December 31, 1903.

MONTHLY, SEASONAL, AND ANNUAL MEANS.

Month.	Temperature.							Precipitation.				Mean humidity.				Total sunshine.		Direction of prevailing wind.
	Mean.	Mean of the maxima.	Absolute maximum.	Mean of the minima.	Absolute minimum.	Highest monthly mean.	Lowest monthly mean.	Mean.	Number of days with 0.01 or more.	Total amount for the driest year.	Total amount for the wettest year.	Relative, 8 a. m.	Absolute, 8 a. m.	Relative, 8 p. m.	Absolute, 8 p. m.	Average hours.	Percentage of possible.	
December.....	56	65	82	48	32	63	50	1.9	5	2.3	5.1	73	3.08	73	4.19	217	74	NW.
January.....	54	62	81	46	32	58	50	1.6	6	0.3	1.3	73	2.77	73	3.70	217	70	NW.
February.....	55	62	85	47	34	58	50	1.9	8	0.5	9.0	78	3.07	74	3.92	224	70	NW.
Winter mean.....	55	63	.....	47	.....	.....	.....	5.4	19	3.1	15.4	75	2.97	73	3.97	219	71	NW.
March.....	56	64	90	49	36	60	52	1.4	7	1.0	6.2	81	3.42	74	4.25	248	66	NW.
April.....	60	65	93	52	39	64	56	0.6	4	0.1	2.8	82	3.84	73	4.34	270	70	NW.
May.....	62	67	98	56	45	66	58	0.4	3	0.1	2.2	82	4.26	75	4.76	248	55	W.
Spring mean.....	59	65	.....	52	.....	.....	.....	2.4	14	1.2	11.2	82	3.84	74	4.45	255	64	NW.
June.....	65	70	94	59	50	69	61	0.1	1	T.	0.3	84	4.83	76	5.33	240	58	SW.
July.....	68	73	88	62	54	73	63	0.1	0	0.0	0.0	87	5.52	76	5.87	310	68	NW.
August.....	70	75	92	64	54	75	66	0.1	0	T.	T.	85	5.76	76	6.26	310	71	NW.
Summer mean.....	68	73	.....	62	.....	.....	.....	0.3	1	T.	0.3	85	5.37	76	5.82	287	66	NW.
September.....	66	74	101	61	50	74	64	0.1	0	T.	0.1	85	5.40	78	6.03	270	72	NW.
October.....	64	70	93	56	44	69	60	0.3	2	T.	0.4	81	4.50	76	5.33	248	70	NW.
November.....	59	68	91	51	38	65	56	0.9	5	0.0	0.1	72	3.49	73	4.63	240	76	NW.
Fall mean.....	63	71	.....	56	.....	.....	.....	1.3	5	T.	0.6	79	4.46	76	5.33	253	73	NW.
Annual mean.....	61	68	101	54	32	.....	.....	9.4	39	4.3	27.5	80	4.16	75	4.90	254	68	NW.

DATES OF TEMPERATURE EXTREMES FOR THE PERIOD JANUARY 1, 1894, TO DECEMBER 31, 1903.

Year.	Minimum 32°.	Maximum 90° or above.	Year.	Minimum 32°.	Maximum 90° or above.
1894	Jan. 7.....	Aug. 27; Sept. 15.	1899	None.....	Apr. 20; Sept. 22; Oct. 8.
1895	None.....	Sept. 27.	1900	.....do.....	None.
1896do.....	May 25, 26.	1901do.....	Oct. 21.
1897do.....	None.	1902do.....	None.
1898do.....	Sept. 11.	1903do.....	Do.

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